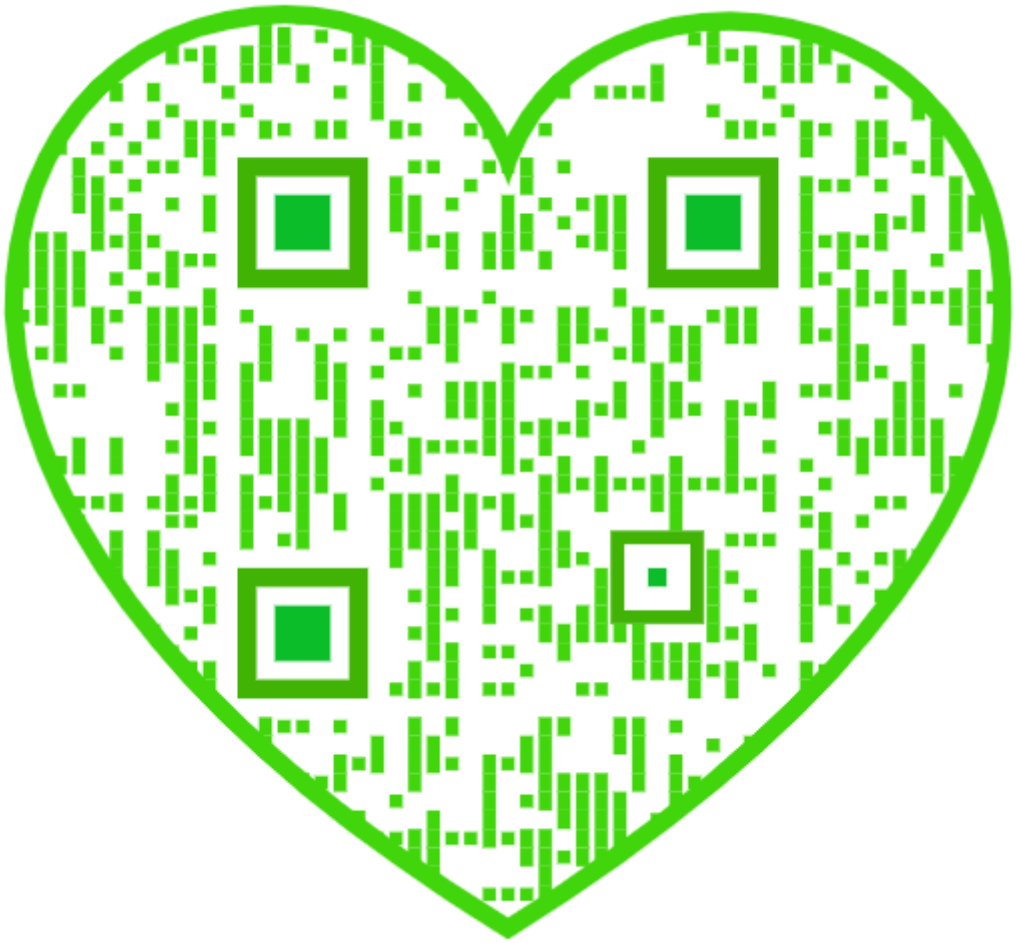

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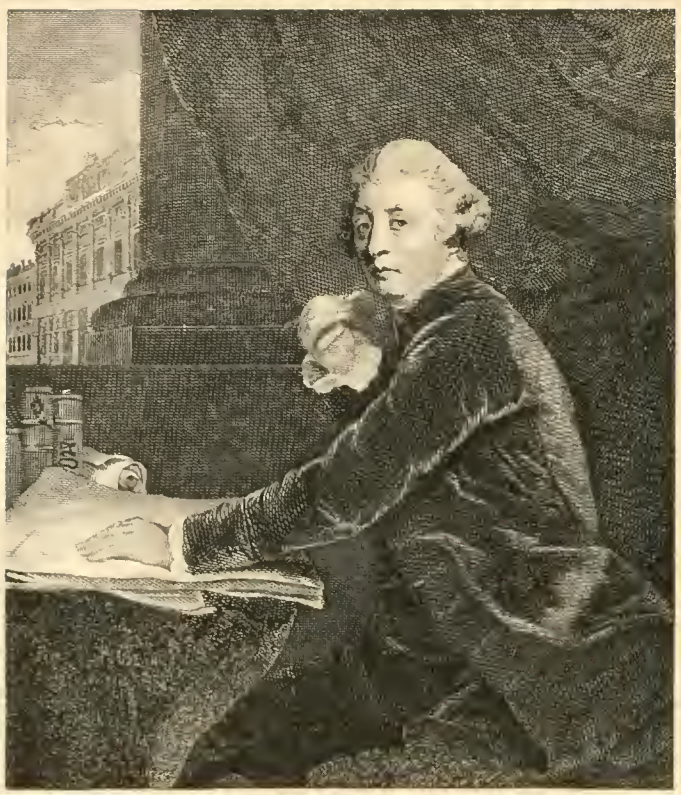

Wm Chambers

A TREATISE

ON

THE DECORATIVE PART

OF

CIVIL ARCHITECTURE

BY

SIR WILLIAM CHAMBERS,
K.P.S., F.R.S., F.S.A., F.S.S.S.

WITH

ILLUSTRATIONS, NOTES, AND AN EXAMINATION

OF

GRECIAN ARCHITECTURE,

BY

JOSEPH GWILT, ARCHITECT, F.S.A.

REVISED AND EDITED BY W. H. LEEDS.

LONDON:
LOCKWOOD AND CO., 7, STATIONERS' HALL COURT.

1862.

LONDON:
KELLY AND CO., PRINTERS, 18 TO 22, OLD BOSWELL COURT,
ST. CLEMENT'S, STRAND, W.C.

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PREFACE.

Since the time of Sir William Chambers very great changes have come over both architectural theory and practice. For a while "ultra-Greek," or what was passed off for and accepted as such, was in the ascendant, until its insufficiency to do more than give us the merest copyism, and the most wearisome repetition of the same forms and features, led to another vicissitude in a quite contrary direction. Gothic, for which the way had been prepared by antiquarian researches, studies, and publications, was welcomed as a change, and a further one has since taken place, an endeavour being now made to bring that style into vogue, and establish it as the most suitable one for secular as well as ecclesiastical buildings, and, moreover, to introduce into it much of quite foreign character. The result of such attempt remains to be seen; yet, even if successful, it can be so only partially, for hardly ever can our Anglo-Italian be discarded from practice in our secular architecture. Hardly can the study of it be dispensed with were it regarded only as a matter of curiosity.

For secular architecture—more especially for public edifices—no more appropriate style presents itself than Modern Classic, that is, Classic as we find it enlarged by the great masters at the period of the so-called Revival, who showed themselves to be successful *Inventors*, when left to their own resources and

compelled to provide for new requirements. Such was eminently the case with respect to Fenestration, which was made to play so important a part in design and general composition. Out of the ancient Classic, which had become a dead style of architecture, a living one was then formed, tolerably complete and consistent, and assuredly far more copious, more flexible, and more generally applicable than was the first or antique Classic. The leaders of the "Revival" would have done greatly better had they been compelled to think for themselves without any *assistance* from the then recently discovered writings of Vitruvius, of which the study operated as a fatal blight upon the budding spring-time of a nascent style. The Revivalists allowed themselves to be enslaved by their superstitious deference to the text of an ancient author, whose meaning is frequently not a little obscure, and whose work contains much more to interest the archæologist and scholar than to inform and instruct the architect.

If not altogether what it might be made, were it to be refashioned, Sir William Chambers' Treatise is a work of sterling merit and permanent value. It lays a most excellent foundation, at least, for the study of the Modern Classic style; and the present reissue of it, at an almost nominal price, will bring it within the reach of very many who may now have the opportunity of studying it for the first time. Something is needed to stem the rampant Gothicism of the day, which seems to affect, as its characteristic, the veriest *sansculottism* in regard to architectural design and composition.

Without presuming too much, it may be anticipated that, when completed, the present edition of so standard a code of architectural teaching as Chambers' is acknowledged to be,

will find its way both into America and our British Colonies, where, if nowhere else, it seems to be needed.

With respect to the style whose leading elements are here exhibited, those who allow themselves to be influenced by mere names, may object to it, that it is avowedly of foreign origin; and that objection might be allowed to have some weight, were it now for the very first time proposed to adopt the style which the practice of two centuries has not only familiarised us with, but has rendered ineradicable. Great as æsthetic differences may be, it is the one that has been established as the universal European style. The very fact of its being decidedly anti-Mediæval in character ought to recommend it to us all the more, since all our social sympathies, and feelings, and tastes, are enlisted on the side of Modernism, in opposition to Mediævalism.

By those who are opposed to it, it is alleged against the style here taught and recommended that it does not admit of further progress; nor is it to be denied that such injurious notion is countenanced by ordinary practice in it. Yet it does not, therefore, follow that further advance is impossible because it has not been attempted. On the contrary, rather encouraging than disheartening is it to perceive that so much is now left to be done which has hitherto been overlooked. As a style, our Anglo-Classic, or Anglo-Italian is not to be estimated by the power—or, perhaps, rather the want of power—on the part of those who employ it. Whatever may be the innate and latent qualities of a style, however excellent it may be in itself, it cannot possibly supply imagination, or bestow æsthetic sensibility. It is the same with a style of architecture as with a language: any one of tolerable capacity may be

taught to speak and write *correctly*, and the same may be done with the architectural student. He may be instructed how to avoid positive faults; how to attain the station of respectable mediocrity. It is a fatal mistake to suppose that intelligent art-instruction is all-sufficient for the advancement of art, and peopling the world with real artists. However judicious, technical instruction can do no more than conduct the student up to that point where he must be left to work out further progress for himself; and with Chambers for his guide, even should he not advance, he will hardly go astray.

W. H. L.

*** The notes now added will be distinguished by the signature (L).

A MEMOIR

OF THE

LIFE OF SIR WILLIAM CHAMBERS.

That branch of the family of Chambers from which the subject of this Memoir immediately descended, was possessed of a good estate at Ripon in Yorkshire, whereon it resided, and whence one of its members went over to settle at Stockholm, not merely as a merchant, but also with a view of recovering a large sum of money advanced by an ancestor to a former king of Sweden. The particulars of this transaction are related by Chalmers in his Biographical Dictionary. William Chambers, who now claims our attention, was by birth a Swede, having been born at Stockholm, and was sent over when very young to Yorkshire for his education. Early in life he went in the capacity of a supercargo to the East Indies, and, if we have been rightly informed, made two voyages to that quarter of the world; in one of which he visited Canton, and having considerable taste for drawing, made sketches of the buildings and costume of the Chinese, which, on his arrival in England some years after,* he published, with the assistance of those excellent engravers, Grignion, Foudrinier, and Rooker.

Abandoning, however, the commercial pursuits in which he was originally engaged with his family, and by which his brother John acquired a large fortune in the East Indies, he fol-

* In the year 1757.

lowed the natural bent of his genius, and travelled into Italy for the purpose of studying the science of architecture, not only by measuring and drawing the invaluable remains of antiquity, but likewise those admirable productions of the revivers of the arts which distinguished the fifteenth and sixteenth centuries. He carefully examined and studied with unwearied application the works of Michael Angelo, Sangallo, Palladio, Scamozzi, Vignola, Peruzzi, Sammichele, Bernini, and other Italian architects, whose designs were in general guided by the rules of the ancients, but whose extraordinary talents, exalting them above the character of mere imitators, produced an originality in their compositions that fully established their fame, and pointed them out as the fittest models for succeeding artists. Mr. Chambers knew how to distinguish and to combine all the excellencies of those great men, and his intuitive good taste and sound judgment led him also to examine into the merits of those French architects whose productions have been since so much esteemed and applauded, among whom Claude Perrault and Jules Mansard held the most distinguished rank. At Paris he studied under the celebrated Clerisseau, and acquired from him a freedom of pencil in which few excelled him. If we mistake not, Reynolds, Wilton, and some other English artists of note, were his contemporaries on the continent.

Until Le Roy published his Antiquities of Greece, little attention was paid to Greek Architecture; but in a very short time, and almost coeval with that work, Stuart, Revett, and others, gave to the world their splendid publications of those Grecian remains, which had thitherto escaped the barbarous spoliations and ravages of Mahometan superstition; and the academies of the arts in most of the enlightened nations of Europe were suddenly enriched by their interesting and invaluable discoveries. But either from the same predilection for the Roman school which had influenced the Italian architects who had preceded him, or from the narrowness

of his finances, Sir William Chambers never trod the Classical ground of Attica, nor even visited Sicily or Pæstum, where he might have beheld some of the most ancient and imposing works of the Grecian republic. It was evident, therefore, that Mr. Chambers derived from other sources his extensive knowledge in the art, and this he effected, as we have seen, not only by searching into the causes which produced those delightful effects apparent in the remains of Roman grandeur, by a close and discriminating observation of the style and manner of the great revivers of the arts, but by storing his mind with the excellent precepts laid down by authors who had not only written upon the art, but had likewise practised it. Possessing, by these means, all the theoretic knowledge necessary to his profession, he ultimately fixed his residence in London, and in Russell Street, near Covent Garden, first took up his abode. As he inherited but little wealth, to his own merit, and the casual interest of a brother architect he was indebted for that success and celebrity he afterwards so justly acquired. Mr. John Carr, of York, being asked by the Earl of Bute if he could recommend him an artist to instruct the Prince, afterwards George the Third, in the study of architecture, Carr, who had just then become acquainted with Mr. Chambers, and had seen and admired his drawings, told his lordship that he knew a young man who would exactly answer his purpose, and accordingly recommended Mr. Chambers. Lord Bute introduced him to the Prince, who became in course of time so much attached to him that, when he came to the crown, he appointed him his chief architect, and promoted him whenever any opportunity offered. Some property at Kew having been purchased for the residence of the Princess Dowager of Wales, Mr. Chambers was employed to lay out the grounds, and to design a number of buildings and temples in a variety of styles, both European and Asiatic, to embellish the spot. Kent had formerly been employed for a similar purpose in the adjacent gardens of Richmond. The buildings and views in Kew Gardens were

published in 1763, the plates having been engraved by the best artists of that period, and the expense of the publication borne, as the author informs us, by royal bounty. But his "*Treatise on the Decorative Part of Civil Architecture*," by far the most useful work on that science which had ever appeared in this country, tended most to establish his reputation, both as an author and architect of research, judgment, and refined taste. The truths it inculcates, and the proportions and forms it recommends, the result of long experience and repeated observation of structures which have stood the test of centuries, cannot fail to impress upon every mind, that there is a criterion of taste in architecture as well as in the other liberal arts,—that genius is consistent with rules,—and that novelty is not necessarily an improvement.

The King was pleased to appoint him his private architect, and he was introduced into the Office of Works as *Comptroller*, and, upon the new modification of that Board, by Mr. Burke's Act, succeeded Whitshed Keene as Surveyor-General of his Majesty's works.

When the bridge at Blackfriars was in contemplation, Mr. Chambers, encouraged by the powerful interest of Mr. Paterson, an opulent merchant in the city, gave designs for that structure, in competition with other architects; but his drawings were deemed too magnificent and expensive for execution, and those of Mr. Mylne were adopted.

In the year 1768 was instituted "The Royal Academy of Arts, in London," to the establishment of which Mr. Chambers was principally instrumental, by possessing a great influence with the King, who was graciously pleased to sanction the undertaking, and appointed Mr. Chambers Treasurer to the Institution, and Mr. Reynolds (afterwards Sir Joshua) to fill the chair of the President.

In the year 1771, having presented to the King of Sweden some highly finished drawings of Kew Gardens, his majesty conferred on him the order of the Polar Star; and he was per-

mitted by his Britannic Majesty to assume the usual style and title annexed to British knighthood.

About this period he made a design for Lord Clive, for his villa at Claremont, near Esher, in Surrey, but that of Mr. Brown, the celebrated landscape gardener, being preferred by his lordship, gave rise to a difference between these gentlemen, which was never entirely reconciled; Mr. Chambers considering Mr. Brown an intruder on an art in which neither his talents nor his education could entitle him to any respect. Upon this, in 1772, our Author published his "*Dissertation on Oriental Gardening;*" and in the introduction severely satirized the taste of Mr. Brown. This work gave occasion to the famous "*Heroic Epistle to Sir William Chambers,*" which was at first supposed to be written by Mr. Anstey, the author of "*The New Bath Guide,*" but was afterwards understood to be the production of Mason, the poet, whose poem upon gardening is very generally known.

Mr. Chambers fortunately obtained the patronage and friendship of the Earl of Besborough, whose superior taste in the liberal arts was well known to every man of science. For this distinguished nobleman he built a villa at Roehampton, in Surrey: of which, says Mr. Dallaway, "the portico is singularly correct and elegant;" and the same author adds, "that he also designed a superb mansion for Lord Abercorn at Duddingston, near Edinburgh." Amongst others of his noble employers were ranked the Duke of Bedford, the Lord Viscount Middleton, Earl Gower, and Lord Melbourn; for the two last he built mansions at Whitehall and in Piccadilly.

Gothic architecture, not having been then revived in this country, afforded but little occasion for the exercise of his talents in the practice of it, though he had always a great veneration for that style of building. The only instance of this kind in which he appears to have been concerned was in some additions and alterations to Milton Abbey in Dorsetshire.

About this period the parishioners of St. Mary-la-bonne having it in contemplation to erect a new parochial church, Mr.

Chambers was invited to make the designs, and accordingly produced several for the approbation of the vestry; but the one most admired was upon a circular plan, with a Doric portico, and surmounted by a dome,—a design exquisitely beautiful, but ill-adapted to the service of the Church of England. It is, notwithstanding, much to be regretted that, as a work of art, it was never carried into execution. The Earl of Pembroke, justly appreciating his abilities, employed him at his celebrated seat at Wilton, near Salisbury, where his triumphal arch, Palladian bridge, and other works, ever command the admiration of all persons of taste who visit that delightful spot. At Blenheim he so happily conformed to the singular style of the original architect, that no discordance was produced by the additions he planned to that magnificent structure. We cannot here forbear noticing the market-house at Woodstock, another work of this master, the simplicity of which, and its appropriate character, cannot fail to be admired.

On the invitation of Lord Charlemont, with whom Sir William Chambers was on terms of strict intimacy, he went over to Ireland, and designed and built a very beautiful casine for his Lordship at Marino. In the summer of the year 1774 he revisited Paris, and once more enjoyed the society of those artists with whom he had some years before cultivated a friendship, and was much gratified by their reception of him, and their great attention to him during his stay. He was, as he afterwards expressed himself, particularly struck with the great improvement in the French Architecture which had taken place within a few years: a more chaste and classical taste having succeeded to the heterogeneous style in which most of the buildings in Paris had before been composed. That city indeed could then boast of a number of very excellent Architects, who were an honour to their country, notwithstanding the prejudice which has always prevailed in England against the taste of our Gallic neighbours; and the names of Le Roy, Dewailly, Peyre, Le Doux, Antoine, Perronet, Soufflot, and others, well

known by their ingenious works, will ever reflect the greatest credit on the state of the art in France at that period.

In or about the year 1775, upon the resignation or demise of Mr. Robinson, of the Office of Works, who had prepared designs for the public buildings then in agitation at Somerset House, in a plain, substantial style, but with little or no pretensions to decorative Architecture, Sir William Chambers was selected by the Government to make entirely new designs; these were approved, and being ordered to be carried into execution, the first stone was laid in 1776. How he succeeded in this great undertaking the public have long since judged. As the edifice arose, it did not, however, fail to attract the severity of criticism; and the public journals, and other periodical publications of the day, teemed with illiberal animadversions on a structure not half completed. It has been well observed, that "all men have eyes, but few have judgment," and in this instance the remark was strongly verified. It must, however, be admitted, that amidst an abundance of architectural beauties some faults and improprieties are discernible. The dignity and grandeur which ought to prevail in a building of this character is in some degree weakened by the multiplicity of the parts, which too much interfere with each other; and the incongruous mixture of rustics with the principal order, which is Corinthian, tends to destroy the effect its correct and beautiful proportion would otherwise produce. Still, after all that has been said upon the subject, one truth we may confidently assert, that by this, the most magnificent of our later public buildings, Sir William Chambers established a reputation of which it will be difficult for his opponents of the present day, or those of the future, to deprive him. We are not, however, writing a critique, but a Memoir.

Sir William Chambers dwelt some years in Poland-street, and afterwards removed to a house which he had erected in Berners-street, residing occasionally, however, at an estate he had purchased at Whitton, near Hounslow, or at his official house at Hampton Court. He was respected and visited by

those who were the most celebrated either for wit, arts, or letters, amongst whom we have the pleasure to recollect Doctors Johnson and Goldsmith, Garrick, Burney, Reynolds, Caleb Whitefoord, and many other celebrated characters. In the latter part of his life he gradually retired from business, and resided in a small house in Norton-street, but being of a cheerful and convivial disposition, he occasionally associated with a few friends of the same profession, who had instituted a sort of club known by the name of the Architects' Society. This Society held their monthly meetings at the Thatched House tavern.

For some time before his death, he was afflicted with a kind of asthmatic complaint, which frequently obliged him to have recourse to an inhaler, and other artificial means of respiration, to obtain that breath of which nature was but too rapidly depriving him. He died on the 8th of May, 1796, in the seventy-first year of his age, and was buried in Westminster Abbey. His funeral was attended by several persons of rank, and by those artists and literary characters who had long known and appreciated his merits, both as a man and as an artist.

By the lady to whom he had been united early in life he had four daughters and one son. The eldest of his daughters was married to a son of Sir Ralph Milbank, a gentleman of a most respectable family in the north of England; the second to a Mr. Innis, a West India merchant; the third was united to a Captain Harward, an officer in the Guards, and the youngest to a Colonel Cottin; and his son married a daughter of the late Admiral Lord Rodney.

Immediately antecedent to the period in which our author made his *début*, for it is not necessary on this occasion to touch on the history of our Architecture, the ingenious Mr. Kent, a *protégé* of the Earl of Burlington, had given several proofs of his architectural skill. In historical painting, for he also professed that art, Kent cannot, however, be said to have approached to any great degree of excellence. Colin Campbell, in his Wanstead House, which we regret is, from a concurrence of

unfortunate circumstances, no longer in existence, and in many others of his designs, evinced great correctness and purity of taste; and the same chaste, though far superior style, is observable in the works of Sir Robert Taylor, who was originally intended for a sculptor, and those also of Mr. James Paine, the elder. The two last mentioned Architects nearly divided the practice of the profession between them, for they had few competitors till Mr. Robert Adam entered the lists, and distinguished himself by the superiority of his taste in the nicer and more delicate parts of decoration. Mr. Adam had been a great traveller, and had filled his portfolios with innumerable drawings and sketches from the inexhaustible mines of Italy and Greece. While these successful Architects were in their full zenith, Mr. Chambers was gradually making his way under the patronage of royalty; and the publication of his incomparable Treatise decided his pre-eminence in an art wherein his predecessors and contemporaries had run into the extremes of a simplicity bordering upon tameness, or a redundancy of ornament which destroyed the effect it was intended to produce.

To Sir William Chambers we are indebted for many improvements in the interior decoration of our buildings. He introduced a more graceful outline, an easy flowing foliage, and an elegant imitation of such flowers and plants, and other objects in nature as were best adapted to the purpose of architectural ornament; and the pains he took to instruct the decorative artists and artificers who were employed by him in the execution of his designs, effected a change in this branch of Architecture equally remote from the unmeaning forms of the preceding age, and the perhaps too delicate and lace-like designs of an ingenious contemporary Architect.

The exteriors of his buildings are marked and distinguished by a bold and masculine style, neither ponderous on the one hand, nor too meagre on the other. He happily united the grandeur and luxuriance of the Roman, Florentine and Genoese schools, with the severe correctness of the Venetian and Vicen-

tine: this was the natural result of his early studies, and the judicious discrimination of his own powerful mind.

In one circumstance he may be said to have been peculiarly fortunate, and especially in his great work at Somerset House; we allude to the excellent and superior manner in which his designs were carried into execution. He had judgment to select and good sense to attach to him, by affability and courtesy, such practical men as were mainly to contribute to his own future reputation.

His chief pupils were Mr. James Gandon, lately deceased, who resided many years in Ireland, where the Custom House and other public works at Dublin reflect the greatest credit on his taste and abilities; he was also the Editor of the fourth and fifth Volumes of the Vitruvius Britannicus: Mr. Edward Stevens, who died at Rome about the year 1776: the late Mr. John Yenn, who succeeded him as Treasurer of the Royal Academy: Mr. Thomas Hardwick,* and Mr. Robert Browne, late of the office of his Majesty's Works, who was also one of Sir William Chambers's executors.

Reflecting upon the various events we have just recorded, and the splendid manner in which the acquirements of this great master were brought into action, we perceive that the natural endowments of his mind, accompanied by industry and perseverance, and above all by integrity and honorable conduct through life, raised him to the head of his profession, and gained him the esteem and veneration of the scholar, the admiration of the artist, and the love and respect of those who looked up to him for protection and support. It is almost needless to press the example of such a character upon the ingenuous and liberal mind. We confidently trust it will have its due weight upon the rising generation, and that Architecture may again flourish uncontaminated by the baseness of ignorant pretenders, uninfluenced by the caprice of power or the erroneous notions of originality.

* To whom we are indebted for this Memoir.—[G.]

AN EXAMINATION

OF THE

ELEMENTS OF BEAUTY

IN

GRECIAN ARCHITECTURE,

WITH

A BRIEF INVESTIGATION OF ITS ORIGIN, PROGRESS, AND PERFECTION.

BY JOSEPH GWILT.

"Si quis unquam de nostris Hominibus a Genere isto, studio ac voluntate non abhorrens fuit, me et esse arbitror, et magis etiam tum, cum erat plus otii, fuisse."—CICERO. ORAT. PRO L. FLACCO.

THERE is, perhaps, no subject on which persons are more apt to differ in their opinions than on the beauty of a building. Upon due reflection, we shall find that this ought not to be a matter of surprise; for when we consider that the prototypes of architecture are entirely different in their nature from those employed in the other arts of design, whose objects of imitation are in their extent limited only by the range of animate and inanimate creation, and that those are so constantly subjected to our senses, that their images are easily understood and compared, it will be manifest that, in an art which has no regulated standard of comparison, opinions must often be at variance with one another.

In architecture, the creative power of nature herself is the model imitated. It is an art which appeals directly to the understanding, and has not the means of flattering the senses in the same way as her sister arts; hence her productions are not universally appreciated: in truth, they are rarely understood, except by those whose education and acquirements have qualified them to judge. The beautiful models of nature, however, are the index and guide of the painter and sculptor; a successful imitation of these models, even without an advance on the part of the artist towards those higher intellectual beauties

which distinguish the historical painter, is capable of affecting us with very agreeable sensations. Nay, the low and still life of the Flemish school has its admirers, and justly. But the architect creates the beauty he produces. The other artists easily address the senses and passions, whilst HE can only rely on his appeal to the understanding. His powers of art are, therefore, limited to operations on the cultivated mind. With the multitude, magnitude and richness are more valued than the utmost elegance of form or the most fascinating series of proportions.

The object of an artist's inquiry is not so much to investigate metaphysically the cause of beauty in the productions of his art, as to study the effects that flow from those which, by the common consent of ages, are esteemed beautiful,* and thus shorten his road by an *à priori* method. It is in this way that he will more readily obtain information on those qualities which act on the understanding and excite our affections by means of the beautiful result they exhibit.† These qualities may be classed as follows ‡:—

MAGNITUDE AND STRENGTH, as qualities which affect the eye.

ORDER AND HARMONY, as qualities which affect the understanding.

RICHNESS AND SIMPLICITY, as qualities which excite the affections, in which taste is the principal guide.

These qualities answer to the three divisions which those who have written on architecture have usually adopted, namely:—

CONSTRUCTION, in which the chief requisites are Magnitude and Strength.

DESIGN OR DISPOSITION, in which the principal requisites are Order and Harmony.

DECORATION, whose requisites are Richness or Simplicity, according to the nature of the composition.

That there are, however, many other circumstances which tend to the production of an agreeable and beautiful result is sufficiently obvious. One of them should be more particularly noticed, because there can be no doubt of its influence in the excitement of our admiration of the splendid monuments of Grecian art; it is, an association with the "times and countries which are most hallowed in our imagination. It is difficult for us to see them, even in

* "The most certaine token of evident goodnesse, is if the generall perswasion of men doe so account it." Hooker's Ecclesiasticall Politie, B. 1.

† It is rather surprising that a recent noble writer on the subject should have employed several pages in the consideration and refutation of Mr. Burke's ingenious but false speculations as to the requisites of *Smallness*, *Smoothness*, *Delicacy*, &c. See Lord Aberdeen's Enquiry into the Principles of Beauty in Grecian Architecture, 8vo. London, 1823.

‡ See Art. *Beau.* Encyclop. Method.

their modern copies, without feeling them operate upon our minds, as relics of those polished nations where they first arose, and of that greater people by whom they were afterwards borrowed.* This is one of those causes which produce such an effect on our minds when we contemplate the stupendous ecclesiastical structures of the middle ages, to which must—at least, by every man of taste—be assigned a very extraordinary and exalted degree of beauty. In these edifices, though to all appearance designed on principles essentially different from those employed by the Greeks, the elements of beauty are identically the same; but an analysis to prove such an hypothesis is not within the range of the present inquiry. Our cathedrals, it cannot be denied, are very much aided, in their effect on the mind, by the recollections which carry us back to those ages when religion was all splendour and society all chivalry. In short, ancient architecture, of whatsoever class, country, or period, cannot be separated, in a just estimation of its merits, from the history of the nation in which it flourished: it is the influence and character of the age and nation to which it belongs by which it is sanctioned and modified.

Magnitude and Strength. — We are assured from experience that beyond certain limits of size and strength, the productions of architecture cease to be beautiful: in fact, beyond a given extent, any mass of matter which fatigues the eye in embracing its extraordinary dimensions, so that the organ must undergo great exertion in order to understand and appreciate the parts is by no means an agreeable object. In architecture, extraordinary magnitude may be considered a vicious excess: for instance—a gallery of such length that the eye cannot with distinctness penetrate to the end—a column too lofty—a building whose site is such, that the visual angle can never include its extent —a building too lofty under the same circumstances—in short, all excessive dimensions—these are to the eye as distressing as a light which is too strong and powerful.†—On the contrary, there is a repugnance to those objects in architecture which are extremely diminutive. In these the eye is limited and constrained within such narrow bounds, that it experiences almost the same sensations as are imparted by the flame of a dim, feeble, inefficient light.

Writers on the principles of taste, and especially Mr. Alison, have made magnitude a quality necessary to the existence of the sublime. That it is so in the works of nature when associated with ideas of power and danger and terror is undeniable: but it will scarcely be admitted that these ideas can be said to find a place in the production of architecture. On which account,

* Alison on Taste, Vol. II. p. 157.

† See Encyc. Method. Art. *Beau.*

magnitude may in them perhaps be more properly classed among the essentials of beauty.

It would be difficult to conceive that any work in the art under our examination could be considered beautiful, if unaccompanied by a requisite strength or stability, or at least such an appearance of either as would carry a conviction to the mind that it possessed sufficient for its existence and duration. Though magnitude, speaking widely, is intimately associated with the idea of proportionable power or strength ; yet stability is well known to be independent of magnitude. The celebrated Campanile at Pisa, cannot from its predicament, be denominated a beautiful object. The first idea which occurs to the mind in contemplating it, is its apparently dangerous state. However pleasing its abstract form, however elegant the arrangement and proportions of its detail, still it never can excite those agreeable sensations which would be necessarily called into action, if its perpendicularity were restored. Our amazement and terror would then indeed cease, and we might have some satisfaction in making an analysis of those details which, except as matter of history, or speculative curiosity, is not now considered worth the labour.*

To apply the foregoing observations at length to the remaining examples of Grecian architecture cannot be necessary. To the magnitude, strength, and consequent stability of these structures we may however add one important feature. It is that the sites of them are almost invariably well chosen, and calculated to display their beauties to the greatest advantage.

Strength and stability in architecture are almost synonymes with fitness or adequacy, at least in appearance, of the several parts of the structure to the performance of their different offices. Thus, the strength and stability of an order depend on the fitness of the column to support the entablature, and on the other hand, on the entablature not containing a greater quantity of matter than the column is either really or apparently able to sustain.† To the Greeks we are indebted for those canons of proportion in the orders which age has approved, adopted and almost sanctified. In the Ionic order of this people

* "All things that are, have some operation not violent or casuall. Neyther doth any thing ever begin to exercise the same, without some fore-conceived end for which it worketh. And the end which it worketh for is not obtained, unlesse the worke be also fit to obtain it by. For unto every end every operation will not serve. That which doth assigne unto each thing the kind, that which doth moderate the force and power, that which doth appoint the forme and measure of working, the same we terme a law. So that no certaine end could be obtained, unless the actions whereby it is attained were regular, that is to say, made suteable, fit, and correspondent to their end, by some canon rule or law." Hooker's Eccles. Politie, B. 1.

† See note on Arcades, Chambers's Civil Architecture, *infra*.

advantage was taken of the happy medium between their early and clumsy, Doric, and the lighter Roman examples which closed the scene of genuine art.

Order and Harmony.—We will now proceed to the consideration of Order and Harmony as elements of Beauty in Architecture. By the word order is meant, a disposing of the several parts of a building in their appropriate places, as related to each other and to the whole. Whilst harmony is that which it would from its Greek derivation almost strictly import,* namely, a joining together of the parts in a consistent and uniform manner, so that all matter which is foreign or unsuitable to the composition be rejected.

There are no edifices in any style of architecture, in which harmony is more pre-eminent than in the Grecian temple. Perhaps, for harmony, the Gothic style, in those of its structures which are entirely of one period, yields only to the Grecian: the reason is evident—the origin, progress, and perfection of both styles were the result of the habits and characters, and wants of the people that produced them.

Harmony may, however, be carried to such an extent as to generate a monotonous effect, as it most evidently does in the architecture of the Egyptians, wherein, as well from an excess of simplicity, as from the absence of variety, it cloys without satisfying. It may be compared to a musical composition, strictly conformable to the laws of counterpoint, wherein the author so constantly dwells on the same key, without making use of his privilege of modulating into others, that he fails to fix the hearer's attention for more than a few seconds. Harmony can never exist in a building whose subdivisions are contrived without such an attention to uniformity of character as to impress on the mind an idea of unity, and if one may be permitted to use the term, an expression of the structure's destination. It is moreover particularly to be attended to, in regulating and modifying the decorations that are employed—for instance, delicacy, lightness, and excess of ornament would ill suit a building whose character and destination were of a nature discordant with those qualities.

Richness and Simplicity—are qualities in the discreet use of which the Greeks carried the art to the highest degree of perfection, at least in the works of the best ages. One of the most exquisite examples of appropriate richness that can be cited, is the beautiful monument of Lysicrates, whilst for the reverse of that quality none can be better cited than the Parthenon. Each is

* "Ως μάλιστα αὐτῶν ἕκαστον ἁρμονίαν τοῖς μεγάλοις λίθοις ἔιναι, (Pausanias, Argol. c. 25) in speaking of the walls of Tiryns.

dressed with an appropriate quantity of ornament; the first captivates, the last is imposing and majestic.

It is well worthy of remark, that those mouldings of the corona, which in the Ionic order are frequently enriched by a system of foliage carved in relief, were in the Parthenon painted in colors—so that a considerable degree of richness was thus obtained without distracting or leading away the eye from more important parts, or affecting the contours of the mouldings when viewed in an oblique direction.

As richness and simplicity belong exclusively to the third division of building, viz., decoration: it follows, that ornaments are to be chosen or rejected according to the associations which exist between their adoption and the effects which they are calculated to produce on the mind. When we aim at an effect of grandeur and stability, but few ornaments are admissible, because, many subdivisions of the detail, which is the case where decoration is unsparingly used, destroy the ideas of strength, as, in fact, they weaken, or appear to weaken, the parts whereon they are employed. Hence, according to its destination, ornament and variety therein must be more or less introduced into the work; always bearing in mind that excess and overloading, when ornament is profuse, distract and fatigue the eye and tend to destroy the effect of the best arranged designs.

Decoration, when judiciously introduced, becomes in many instances* a language, intelligible only, however, when the artist is capable of speaking it correctly and the spectator of comprehending it. It is then a system of hieroglyphic writing, and the building to which it is applied becomes historical, and tells its tale more nobly and appropriately than it can ever do through the undignified medium of mural inscriptions. What can be more judicious or appropriate than the sculpture in the metopes and pediment of the Parthenon. Ornament here, not only creates a variety on the surface of the work, but relates, by the aid of the sculptor, a history intimately connected with the religious and moral destination of the edifice to which it is applied.

The strenuous advocates of the Grecian style are not willing to admit that it has defects, but that there are such, will be submitted to the reader in investigating its origin, progress, and perfection, in the following pages, as they incidentally come into consideration.

If the student desire to profit by the use and application of this style of architecture in his practice, any course he can pursue will be better than the common expedient of tamely copying the profiles of its examples into his designs,

* See Encyc. Method. Art. *Harmonie.*

as he finds them delineated in the authors to which he is usually referred. An artist can only make them properly subservient to his purpose, by entering into the views and feelings which actuated the inventors themselves. It is a singular proof of the invention of the ancients, that no two examples of the same order are precisely similar. Their variety seems equal to that which we observe in the reverses of their coins.

This short and compressed view of the Elements of Beauty in Grecian Architecture, cannot be more appropriately concluded than in the words of Alison.* "The life of man," says that author, "is very inadequate to the duration of such productions, and the present period of the world, though old with respect to those arts which are employed on perishable subjects, is yet young in relation to an art which is employed upon so durable materials as those of architecture: instead of a few years, therefore, centuries must probably pass before such productions demand to be renewed, and long before that period is elapsed, the sacredness of antiquity is acquired by the subject itself, and a new motive given for the preservation of similar forms. In every country, accordingly, the same effect has taken place: and the same causes which have thus served to produce among us, for so many years, a uniformity of taste with regard to the style of Grecian architecture, have produced also among the nations of the East, for a much longer course of time, a similar uniformity of taste, with regard to their ornamental style of architecture; and have perpetuated among them the same forms which were in use among their forefathers before the Grecian orders were invented."

* Vol. II. p. 166.

ON THE ORIGIN OF GRECIAN ARCHITECTURE.

Though Babylonia,* Chaldea, and Egypt, had attained very considerable proficiency in their architectural works at a very early period, as we must conclude from the accounts in the Holy Scriptures, no less than from those of ancient authors, yet neither of these countries, can from all that we collect, be said to have known or understood the principles of the art so as to have rendered it capable of affecting the mind otherwise than by the enormous magnitude of the works it produced. Nimrod built three cities in Chaldea.† Nineveh was founded by Ashur,‡ and we read of the establishment of towns in Palestine as early as the age of Jacob and Abraham.§ Later, in Homer's time, Egypt boasted her celebrated Thebes,‖ which had at that period been long in existence. The age of the architectural wonders and excavations of India is undecided. It seems likely that the Egyptians gained their architecture from the East, or as Jacob Bryant¶ supposes, that the buildings of both nations were erected by colonies of some great original nation. This supposition is borne out amazingly by the singularities in common of the Indian and Egyptian styles. In the ornaments applied to each there is a striking similarity, and each delighted in structures of extraordinary dimensions. It was in Greece, however, that true architecture was reared; in that country she received all the elementary beauties of which she was susceptible, as well as those in her general forms with which the habits and character of the nation invested her. But it is not to be presumed that the Oriental and Egyptian architecture were devoid of beauty; on the contrary, much is to be admired in the detail of each. In

* Strabo speaks of many magnificent works which he attributes to Semiramis, and says that besides those in Babylonia, there were monuments of Babylonian industry all over Asia. He speaks of λοφοί (high altars) and strong walls and battlements of various cities, together with subterraneous passages of communication. Also aqueducts, for the conveyance of water under ground; and passages of great length upwards by stairs. Also bridges,—lib. xvi.

† "And the beginning of his kingdom was Babel, and Erech, and Accad, and Calneh, in the land of Shinar." Gen. x. 10.

‡ "Out of that land went forth Ashur, and builded Nineveh, and the city of Rehoboth and Calah." Ibid v. 11.

Genesis, xix. 20.—xxviii. 19.

‖ Οὐδ' ὅσ' ἐς Ὀρχομενὸν προτιν[ί]σσεται, οὐδ' ὅσα Θήβας
Αἰγυπτίας ὅθι πλεῖστα δόμοις ἐν κτήματα κεῖται,
Αἵ τ' ἑκατόμπυλοί εἰσι.— Iliad I. 381.

Κτίσαι δέ φασι τοὺς περὶ τὸν Ὄσιριν πόλιν ἐν τῇ Θηβαΐδι τῇ κατ' Αἴγυπτον ἑκατόμπυλον.—Diod. Sic. lib. i. fol. 18. Edit. Wesseling—Herodotus Euterpe.

¶ Quarto edit. Vol. III.

that of the latter the forms of its masses are peculiarly grand. It has been noticed in a preceding page that the monotony of the ornaments which the Egyptians employed, renders them in some respect deficient in point of beauty,* but let us always recollect it was from the foliage used by the Egyptians, particularly that of the Lotus and Palm-tree,† and even from their employment of Volutes, that the Grecians evolved the Corinthian capital. They had sufficient penetration to discover the sound principles on which the Egyptian architecture was founded, and judgment to select, improve and adopt what was worthy of imitation.

It was, of course, by very slow steps that architecture proceeded to that perfection which it attained in Greece. The mechanical arts must have made considerable progress before buildings of stone could have been constructed. If we may believe Pliny,‡ their early houses were but simple huts built of earth and clay, resembling the caverns from which they had but just emerged. The same author says, that the Greeks attributed the honor of inventing bricks to Euryalus and Hyperbias, brothers and natives of Attica. But the time in which these persons lived is unknown, and their introduction of the use of bricks into Greece is the utmost that can be assigned to them, if indeed the whole story be not a fable.

The Athenians were amongst the earliest of the nations of Greece, who became a body politic. From their indisposition to move far away from their country, they received as some conjecture, the appellation of Αὐτόχθονες,§ though according to Plato, the import is more literal, from a belief that their ancestors actually sprang from the earth. The earliest of their kings, of whom we have notice was Ogyges, but of him little more than his name is known.

* *Suprà*—p. 15.

† Denon, Voyage dans la Basse et la Haute Egypte. Plates 44 and 45.

The use of the Palm leaf in the Capitals of the Egyptian columns may have had its origin in an early and popular notion, that the palm-tree rose under any weight that was placed on it, and in proportion to the degree of depression—"Ωσπερ ἀντιστάμενον τῷ βιαζομένῳ." Plutarch, Symposiac. lib. vi. c. 4.

"Si, super palmæ, inquiunt, arboris lignum magna pondera imponas, ac tam graviter urgeas oneresque, ut magnitudo oneris sustineri non queat, non deorsum palma cedit, nec intra flectitur, sed adversus pondus resurgit et sursum nititur recurvaturque." Aulus Gell. lib. iii. c. 6.

‡ "Laterarias, ac domos constituerunt primi, Euryalus et Hyperbias fratres Athenis: antea speeus erant pro domibus." Plin. lib. vii. s. 57. See also Pausanias, Attic. c. 28, and Æschylus, Prometh. Vinct. 449.

§ Isocrat. in Panæg. pa. 65, fol. Basil. 1750.

"Adsunt Athenienses, unde humanitas, doctrina, religio, fruges, jura, leges ortæ, atque in omnes terras distributæ putantur: de quorum urbis possessione, propter pulchritudinem etiam inter deos certamen fuisse proditum est: quæ vetustate eâ est, ut ipsa ex sese suos cives genuisse dicatur." Cicero Orat. pro L. Flaeco.

‖ In Menexen. Fol. Francof. 1602, pa. 518.

His son Eleusinus, however, built the city of Eleusis, so that the father who also governed Bœotia* must have introduced some civilization into those parts of Greece. The kingdom of Argos owed its foundation to Inachus,† whose son Egialeus is said to have founded the kingdom of Sicyon. It has been conjectured, and with every appearance of probability, that the above two chiefs belonged to some of those different colonies which moved from Asia and Egypt, and first civilised the inhabitants of Greece, teaching them to dwell in cities, and to lead a less wandering life. These doubtless brought with them some remembrance of the arts of their native countries. The step from the unwieldy Egyptian column to the Grecian Doric was indeed wide, yet experience shows us how very gradual is the advance of science, and through what a number of stages it must pass before it even approaches perfection.

The earliest edifices of the Greeks were far from exhibiting skill or elegance. The temple at Delphi, celebrated by Homer,‡ and supposed by Bryant§ to have been originally founded by Egyptians, was according to Pausanias,‖ little better than a hut covered with laurel branches. During the time of Vitruvius the ruins of the building wherein the Areopagus assembled were still visible: even this was, according to that architect,¶ but a miserable sort of structure. Cadmus,** about 1519 B. C. has the reputation of having introduced to the Greeks the worship of the Egyptian and Phœnician deities, and of having instructed them to quarry and work the stone of the country††

Pausanias—Bœotic. cap. 5.

† *Ἄργος δ' Ἰναχιων*—Strabo. Arcad. lib. viii.

‡ Iliad I. 404 et seq.

§ Analysis of Ancient Mythology, vol. I. pa. 378.

‖ *Ποιηθῆναι δὲ τὸν ναὸν τῷ Ἀπόλλωνι τὸ ἀρχαιότατον δάφνης φασὶ, κομισθῆναι δὲ τοὺς κλάδους ἀπὸ τῆς δάφνης τῆς ἐν τοῖς Τέμπεσι. καλύβης δ' ἂν σχῆμα ὕστως γε ἂν εἴη παρισχηματισμένος ὁ ναός.* Phocic. c. 5.

¶ Vitruvius, lib. ii. c. 1.

* Jacob Bryant treats Cadmus in the same manner as he does the other Grecian heroes, denying altogether the existence of such a person, and attributing the good works done by him to the Colony of Cadmians instead of their leader. This is, however, a matter of little consequence to our present purpose. Herodotus tells us, that when the Cadmians came to Attica, they introduced a new system of Architecture and built Temples in a style quite different from that to which the natives had been used. And he describes the buildings in question as erected at a distance from those of the country. *Ἐπὶ τούτου δὴ τῶν Λαοδάμαντος τοῦ Ἐτεοκλέος μουναρχέοντος ἐξανιστέαται Καδμεῖοι ὑπ' Ἀργείων, καὶ τρέπονται ἐς τοὺς Ἐγχέλεας· οἱ δὲ Γεφυραῖοι ὑπολιφθέντας ὕστερον ὑπὸ Βοιωτῶν, ἀναχωρέουσι ἐς Ἀθήνας. καὶ σφι ἱρά ἐστι ἐν Ἀθήνῃσι ἱδρυμένα τῶν οὐδὲν μέτα τοῖσι λοιποῖσι Ἀθηναίοισι, ἀλλά τε κεχωρισμένα τῶν ἄλλων ἱρῶν, καὶ δὴ καὶ Ἀχαΐης Δήμητρος ἱρόν τε καὶ ὄργια.* Herodotus, Terpsich. 61.

†† Pliny, lib. vii. sect. 57. Euripides, speaking of the Walls of ancient Mycenæ, considers them as the productions of the Cyclopeans after the Phœnician rule and method.

——— *ὡς τὰ κυκλώπων βάθρα,*
Φοίνικι κανόνι καὶ τύκοις ἡρμοσμένα. Herc. Fur. 939.

so as to make it useful in building, and moreover of having taught them the art of fusing and working metals. From this period the Greeks rapidly advanced in civilisation; but the present state of the art at that early period cannot be satisfactorily determined, and the difficulties in the way of acquiring any certain knowledge on the subject render the task irksome, perhaps impossible to perform. The laws of Draco in the 39th Olympiad are the most ancient writing, says Bryant, to which we can securely appeal. "When the Grecians began afterwards to bestir themselves, and to look back upon what had passed, they collected whatever accounts could be obtained. They tried also to separate and arrange them to the best of their abilities; and to make the various parts of their history correspond. They had still some good materials to proceed upon, had they thoroughly understood them; but herein was a great failure. Among the various traditions handed down, they did not consider which really related to their country, and which had been introduced from other parts."* If Pausanias could be relied on, the Greeks had, at an extremely early period, erected some very extraordinary buildings. This author, moreover, speaks of the Treasury of Minyas† king of Orchomenus, and the Walls of Tiryns‡ he designates as a work worthy the admiration of every age. The first mentioned building if constructed by Minyas must have existed previous to the taking of Troy, for Minyas reigned 1377 years before the Christian æra, and the Walls of Tiryns, said to have been built by Proteus,§ which consist of immense irregular blocks of stone, must have been constructed about the same period. Goguet,‖ to whom I am much indebted, observes that if these edifices are so ancient, it is very singular that Homer, Herodotus, Diodorus and Strabo should have never made any remark on, nor even mention of the Treasury of Minyas. Apollodorus and Strabo, however, speak of the Walls of Tiryns,¶ saying that they were built by workmen whom Prœtus had brought from Lycia, and

* Vol. I., page 152.

† *Θησαυρὸν τε ἀνθρώπων ὧν ἴσμεν Μινύας πρῶτος ἐς ὑποδοχὴν χρημάτων ὠκοδομήσατο.* Bœotic. c. 36.

‡ *Τὰ τείχη τὰ ἐν Τίρυνθι οὐδὲ ἐπὶ βραχὺ ἤγαμεν μνήμης, οὐδὲ ὄντα ἐλάττονος θαύματος.* Ibid.

§ These Walls are of the description usually called Cyclopean. Jacob Bryant, in speaking of the buildings of Tiryns, and of the seven Cyclopeans, mentioned by Strabo, lib. viii. Arg., by whose assistance they were constructed, turns the men into the buildings or towers themselves. "These towers," he says, "were erected likewise for Purait or Puratheia, where the rites of Fire were celebrated: but Purait or Puraitus, the Greeks changed to Προῖτος; and gave out that the Towers were built for Prœtus, whom they made a king of that country." According to Strabo, lib. viii., the Cyclopes were a nation driven out of Thrace, which settled in Asia Minor, and which came into Greece to work for him. See also Herodotus, Terpsichore, c. 6.

‖ Origine des Lois, 8vo. Paris, 1809, Vol. II., pa. 182.

¶ See note *suprà*.

Homer* records *Τίρυνθα τειχίοεσσαν*. The lasting Walls of Tiryns still exhibit, in the small portion which remains, the work and arrangement of a very remote age.

It has been conjectured† that the Treasury of Minyas bore a resemblance to the Treasury of Atreus at Mycenæ, still in existence, in which the beds of the courses of stones are horizontally adjusted, and manifest an advanced stage of the art. What has been called the vaulting of this last mentioned Treasury is not entitled to that appellation. Though the internal face of the work is in the form of a circular spindle generated by the revolution of a segment of a circle about its chord, and not a paraboloid‡ as a noble author has stated, yet its construction indicates no knowledge of the principles of arching or vaulting. The curve is obtained by each course corbelling over in horizontal beds and by afterwards working the inverted steps to the shape required. Now in respect of that of Minyas, Pausanias says that it was vaulted and constructed of marble, although there is no likelihood, even so late as the age of Homer, that this material was employed in Grecian buildings. Had that been the case, says Goguet, "Homer would scarcely have omitted the mention of it in his description of the Palace of Alcinous§, and much less in the Palace of Menelaus, which was celebrated by him for the gold, silver, brass and ivory which it contained.

If the introduction among the Greeks of the instruments necessary for working materials be assigned to Dædalus, which it would be if we might rely on the authors of antiquity,‖ it will be no easy task to reconcile the accounts of Pausanias and others with the truth, inasmuch as this person is allowed on all hands to have existed, if at all, long subsequent to the periods above mentioned. Goguet has therefore made him altogether a fabulous personage, taking the name ΔΑΙΔΑΛΟΣ to mean nothing more than a skilful workman, a meaning which he says has not escaped the notice of Pausanias. It is indeed surprising, had so wonderful an artist existed, that he should not have been celebrated by

* Iliad. B. 559.

† In an "Inquiry into the Principles of Beauty in Grecian Architecture, &c." by George, Earl of Aberdeen. 12mo. London, 1822, pa. 92.

‡ Ibid. It is presumed that the author may have meant a parabolic spindle.

§ Odyss. Δ. 72.

‖ Diod. Sic. lib. iv.

> "Namque huic tradiderat, fatorum ignara, docendam
> Progeniem germana suam, natalibus actis
> Bis puerum senis, animi ad precepta capacis."
>
> Ovid. Metam. lib. viii. 541.

Pliny, lib. vii. sect. 57.

Homer, or that Herodotus, who availed himself of every opportunity for launching into anecdote, should, in describing the Labyrinth of Egypt, have said nothing in relation to that of Crete, especially as it would have been so much to the honor of his own country.* Goguet is of opinion that many of the instruments whose introduction was attributed to Dædalus were not known to the Greeks even in the time of Homer, who does not specify in his poems any other than the hatchet with two edges, the plane, the auger, and the rule.† Neither square, compasses, nor saw are particularised. The Greek signification, *πρίων*, of a saw or its equivalent is not found in any of his works.

The information gained from the Homeric writings, whose authenticity it is unnecessary to discuss in this place, and from the Odyssey more particularly, which, if not so ancient as the Iliad, must, nevertheless, have soon followed it, and is admitted on all hands to be of very high antiquity, shows us that in the age of the poet, the patriarchal was the form of government that prevailed,‡ and that the chief buildings of those days were the palaces of the princes. At this period, the Altar appears to have been the only structure for sacred use: it was little more than a hearth on which the victim was prepared for the meal. In earlier times the tops of mountains§ were selected not only by the Greeks but by other nations for the worship of their Gods. Thus we find Hector sacrificing on the top of Ida:

——— *ὣς μοι πολλὰ βωῶν ἐπὶ μηρί' ἔκηεν*
Ἴδης ἐν κορυφῇσι πολυπτύχου, ἄλλοτε δ' αὖτε
Ἐν πόλει ἀκροτάτῃ. Iliad X. 170.

* Athenagoras, Leg. pro Christ. xiv. says that before Homer and Hesiod no sculptor's art appeared in Greece nor representations of the gods. *Αἱ δ' εἰκόνες μέχρι μήπω πλαστικὴ, καὶ γραφικὴ, καὶ ἀνδριαντοποιητικὴ ἦσαν, ὀυδὲ ἐνομίζοντο.*

† "*Πέλεκυν μέγαν, χάλκειον, ἀμφοτέρωθεν ἀναχμένον.*" Odyss. E. 239 et. seq. Forsyth, in the usual caustic style of his Notes to the valuable "Remarks on the Antiquities, Arts, and Letters in Italy," second edit. 8vo. Lond. 1816, p. 292, says, "All Homer's cutlery is made of *ὀξὲϊ χαλκῷ*, his *χαλκεὺς* is a jack-of-all trades, and the metal itself is thus generalised by him."

——— ——— *χάλκειον δαίδαλα πολλὰ,*
Πόρπας τε, γναμπτὰς Θ' ἕλικας, κάλυκάς τε, καὶ ὅρμους.
Iliad Σ. 400.

‡ Principles of Design in Architecture, 8vo. London, 1809.

§ "And he brought him into the field of Zophim, to the top of Pisgah, and built seven altars."—Numbers, xxiii. 14.

Strabo informs us that the Persians always performed their worship upon hills. "*Πέρσαι τοίνυν ἀγάλματα μὲν καὶ βωμοὺς οὐχ' ἱδρύονται· Διὶ δὲ ἐν ὑψηλῷ τόπῳ τὸν οὐρανὸν ἡγούμενοι Δία.* Lib. xv. See also Herodotus, Euterpe.

Virgil makes his hero choose a high situation for a temple to Venus:

"Tum vicina astris Erycino in vertice sedes
Fundatur Veneri Idaliæ: tumuloque sacerdos
Et lucus latè sacer, additur Anchiseo." Æn. v. 760.

Not until after Homer's time was a regular priesthood established in Greece. At Sparta the office of priest was vested in the Kings. In Egypt,* and in many other places, the dignity was obtained by inheritance. When the principal person was absent, it was customary for the next highest in rank present to offer the sacrifice. Thus was Eumæus engaged, as we find by the Odyssey. In this age we consequently find the altar in the King's palace—the part therefore in which it stood must occasionally have been used as a temple. Hence, it seems probable that until the sacerdotal was separated from the kingly office, the Grecian temple, properly so called, had no existence.

Though it be entirely conjectural, it will not be amiss to consider in this place, as well as can be collected from a junction of different passages in the Odyssey, the nature of the palaces described in it; but more especially that of Ulysses, for which we can collect more materials than for the others. Our chief concern is with the ΑΥΛΗ. In the Odyss. Σ. 236, 7, as well as in other passages we find a distinction made between it and the ΔΟΜΟΣ. From its etymology, Ἄω, it should be, *locus subdialis*. It is sometimes, indeed, used for the whole palace,† but this is by no means its import in the Odyssey. In the ΑΥΛΗ Telemachus slew the female attendants of Penelope, tying them up by a rope over the ΘΟΛΟΣ, ceiling.‡ If, therefore, the ΑΥΛΗ was open at top, where could the ΘΟΛΟΣ have been, if not belonging to the ΑΙΘΟΥΣΑ cloister, which was ἠρίδουπος (sonorous echoing),§ and circumscribed the open part of the ΑΥΛΗ. It, the ΘΟΛΟΣ, was supported by ΚΙΟΝΕΣ, posts or columns. In the centre of the ΑΥΛΗ stood the ΒΩΜΟΣ altar. The ΜΕΣΟΔΜΑΙ in this arrangement will turn out to be the spaces between the columns or posts, or in other terms the intercolumniations, which is the vulgar translation of the word. In this case, the passage in which Telemachus is described as seeing the light on the walls, &c., becomes quite intelligible.

Ἔμπης μοι τοῖχοι μεγάρων, καλαί τε μεσόδμαι,
Εἰλάτιναί τε δοκοί, καὶ κίονες ὑψόσ' ἔχοντες,
Φαίνοντ' ὀφθαλμοῖς.— Odyss. Τ. 170.

It is clear that the word ΑΙΘΟΥΣΑ, whose root is Αἴθω (luceo) will bear the interpretation above given, whether the other conjectures advanced be or

* Ἐπειὰν τε τις ἀποθάνῃ, τούτου ὁ παῖς ἀντικατίσταται. Herod. Euterpe.

See also Virgil—"Rex Anius, rex idem Hominum, Phœbique sacerdos." Æneid iii. 80., on which passage Servius observes, "Majorum enim hæc erat consuetudo, ut rex esset etiam, sacerdos et Pontifex, unde hodieque Imperatores Pontifices dicamus."

† Iliad. Ζ. 247.

‡ Odyss. Χ. 466.

§ Ibid. Υ. 176.

not well founded,—and from such an arrangement the transition to the hypæthral temple is by no means violent or extraordinary. It is, moreover, coincident with the disposition of the Egyptian temple,* and therefore not perhaps altogether conjectural.

Whilst on this subject perhaps a few words might serve to illustrate the condition of the art at the period of which we are speaking—for this purpose we will take the house of Alcinous, which is described as follows:†—

"Ulysses went to the celebrated house of Alcinous and stood considering many matters, before he approached the brazen threshold, ΟΥΔΟΣ.—A splendour like that of the sun appeared throughout the lofty roofed house, ΥΨΕΡΕΦΗΣ, of Alcinous. Brazen walls were to be seen‡ on every side from the threshold to the innermost part. On these was a capping, ΘΡΙΓΚΟΣ, of a blue colour. Golden doors in the interior enclosed the well-secured house. Silver jambs, ΣΤΑΘΜΟΙ, stood on the brazen threshold. The lintel ΥΠΕΡΘΥΡΙΟΝ, was of silver, the cornice, ΚΟΡΩΝΗ, of gold. On each side of the door were gold and silver dogs, which were by Vulcan so ingeniously contrived, that they would never experience the infirmities of age—these guarded the house of the magnanimous Alcinous.

"Within, seats were attached to the wall, in different places, from the entrance to the inner part of the house, and on them were covers of a light texture wrought by the women. These seats were occupied by the chiefs of the Phæacians, who sate eating and drinking. They were continually feasting.

"Golden youths with blazing torches in their hands, stood on the well-built altars, to light the house for the guests at night," &c., &c.

Returning to the construction and arrangement of the ΑΥΛΗ, it has been surmised in a preceding page that it might, under all the circumstances, have furnished a hint for the rectangular and columnar disposition of the temple itself. We are unable to trace the degrees which intervened between the sole use of the altar and the establishment of the Greek temple, or when the latter became a necessary appendage to the religion of the country.§ "We are equally uninformed how the revolution happened which abolished the civil, judicial, and military offices of Kings, leaving the sacerdotal. But though the King's palace seems to have had no part appropriated to religious ceremony,

* See Denon, Plate 34, which represents the interior of the Temple of Apollinopolis at Edfou.

† Odyss. II. 81.

‡ I am aware that ἐληλάδατ' ἔνθα καὶ ἔνθα, does not perhaps exactly bear the interpretation given—but as there is some doubt of the precise meaning of the passage, which is by no means particularly important here—the translation will sufficiently answer the purpose.

§ Principles of Design in Architecture, page 26.

yet being the depository of whatever furniture and utensils the rite of sacrifice required, a substitute would be wanted when this palace was no more. To supply this want the cell seems to have been added to the Greek temple." It is supposed by Eusebius and others* that temples owe their origin to the reverence which the ancients had for their deceased friends and relations and benefactors, and that they were nothing more than stately monuments erected in honor of the early heroes who had conferred whilst living some public benefit on mankind. The temple of Pallas, for instance, at Larissa, was the sepulchre of Acrisius; Cecrops was interred in the Acropolis at Athens, and Erichthonius in the temple of Minerva Polias. So the passage in Virgil Æneid. lib. ii. v. 74.

> Tumulum antiquæ Cereris, sedemque sacratam
> Venimus,—

shows the practice of the ancients in this respect. A custom prevailed of even offering sacrifices, prayers, and libations at almost every tomb,—and in some cases the sepulchre of the dead was as much an asylum or sanctuary as afterwards the temple itself. That this honor was not confined to the Gods, but extended to other great persons, may be seen by the evidence of Strabo.†

The houses of the Greeks at a very early period had an upper story over some part or parts of them. The passages in the Iliad,‡ which tend to the proof of this, have by some persons, perhaps to strengthen a weak argument, been pronounced of doubtful antiquity. It will be needless, however, to examine this assertion critically, because it is quite manifest that the Eastern dwellings were not confined within the limits of a single story. In Scripture we shall find several notices which prove this point satisfactorily. David, for instance, withdrew himself to weep for Absolom, in the chamber *over the gate*.§ Ahaz erected his altars upon the terrace of the *upper chamber*.‖ We read of the *summer chamber* of Eglon which seems to have had *stairs* to it, through which Ehud escaped after he had revenged Israel.¶ And these are all of them, by the Seventy, translated ΥΠΕΡΩΟΝ, the word used by Homer. Terraces on the tops of the Eastern

* Potter's Archæolog. Græc. Chap. iii. Vol. I.

† Lib. ii. pa. 160. Falconer's Edit.

‡ Iliad. B. 514, 16, 184.

§ 2 Samuel, xviii. 33.

‖ 2 Kings, xxiii. 12.

¶ 1 Judges, iii. 20—23. See also Harmer's "Observations on various Passages of Scripture," and 1 Kings, vi. 8.

houses were also general, for the Jewish law enacted that persons should surround them with a protecting railing.* In some of the Egyptian remains there are distinct traces of even more than two stories, and it is not, therefore, too much to contend for the existence of one in the time of the poet.

The word ΚΛΙΜΑΞ frequently occurs in the Odyssey in connection with the verbs ΑΝΑΒΑΙΝΕΙΝ or ΚΑΤΑΒΑΙΝΕΙΝ and the word ὑπερῶον above mentioned. Whether it signify a ladder or a staircase is of no importance, though the usual progress of invention would seem to indicate the priority of the ladder. Neither is it of consequence to our present purpose to fix with precision the exact situation of the ὑπερῶον or cœnaculum ; whether at the back part of the house or over the δόμος itself, it is sufficiently clear that it was necessary to reach it by means of a staircase.†

Stone and brick were the materials most commonly employed in the works of the Egyptians, from whom if Greece gained her knowledge in the arts, one can hardly see the necessity for the intermediate step of those wooden structures which are said to have been the original type of the Doric Temple. It is, indeed, true that the forests of the country would have supplied timber in abundance, and the little labour requisite to work it would have been an additional inducement for its employment.

The deducement of the parts of the Doric Order entirely from wooden buildings is not without some anomalies which will be afterwards noticed in speaking of that order. The idea seems to have been current in the time of Vitruvius,‡ but upon his authority in matters of historical research not much reliance is to be placed. It cannot, however, be denied that up to a comparatively late period timber was very extensively used in the construction of the Greek temple. In the time of Xenophon it was a material not considered too mean to be employed in forming the "statues of Deities in the smaller temples, where neither a great revenue appropriated to religious purposes, nor extensive public favour, afforded means for large expense."§

If the wooden temples had altogether escaped the flames which consumed so many of them, it is not to be expected that they would, from the nature of the material, have escaped the all-devouring hand of time. As the principles

* Deut. xxii. 8. "When thou buildest a new house, then thou shalt make a battlement for thy roof, that thou bring not blood upon thine house if any man fall from thence." Through the want of this species of fencing or railing at the palace of Circe, Elpenor, one of the companions of Ulysses, had the misfortune of breaking his neck. Odyss. K. 552 et. seq.

† Odyss. P. & seq. 49. Σ 205 Φ. 6. &c.

‡ Lib. iv. c. 1.

§ Principles of Design in Architecture, p. 31.

of construction must bear some relation to the nature of the materials: the proportions of the wooden temple would in all probability have been different from those in which stone was employed. The epistylium or beam laid on the top of the supports in the former, probably ran through each side of the building in one piece, but a block of stone, could it have been procured sufficiently long and deep for the purpose, would not have been raised to its place and deposited on the heads of the columns without such assistance from the complication of the mechanical powers, as would in those days, if even known, have proved so unwieldy and expensive as to have rendered their application inexpedient. Here then is the first step towards a reduction of the space between the columns which is denominated an intercolumniation: for it is to be remembered that at the period of which we are speaking, the arch was to all appearance unknown.

Some general notion may be formed of the comparative antiquity of the different examples of the Grecian Doric by measuring their heights in terms of the lower part of the diameter of their shafts, of which more notice will be taken in a subsequent page—in this place, it is only necessary to state, that the massive proportions of the early Doric, such for instance as those used in the Temple at Selinunts in Sicily, where the columns are only five diameters in height, at a later period assumed a much greater appearance of delicacy and elegance, and that the intercolumniations of this order gradually increased as the art progressed towards perfection.

The account of the Origin of the Orders of Architecture as given by Vitruvius seems too absurd a fable to need much discussion. It will not escape the notice of any one, that the time which he assigns for their origin, is long previous to the time of Homer, who does not in any part of his poems give the slightest hint which could lead us to a belief that there was what is understood by the word ORDER to be found in any part of the buildings he describes, which had it existed, it seems at least probable, he would have mentioned. He speaks of temples consecrated to Neptune and Minerva, without describing them; it is likely, therefore, that they were only altars to those deities.*—We will, however, give the account from Vitruvius, which is as follows:†—

"Dorus, son of Hellen and the Nymph Orseis reigned over Achaia and Peloponnesus. He built a temple of this (the Doric) order on a spot sacred to

* Odyss. Z. 266. Iliad. Z. 297. See also *supra*, page 22.

† Lib. iv. c. 1.

Juno at Argos, an ancient city. Many temples similar to it were afterwards raised in the other parts of Achaia, though at that time its proportions were not precisely established.

"When the Athenians in a general assembly of the States of Greece, sent over into Asia, by the advice of the Delphic oracle, thirteen colonies at the same time, they appointed a Governor over each, reserving the chief command for Ion, the son of Xuthus and Creusa, whom the Delphic Apollo had acknowledged as son. He led them over into Asia, where they occupied the borders of Caria, and built the great cities of Ephesus, Miletus, Myus, (afterwards destroyed by inundation, and its sacred rites and suffrages transferred by the Ionians to the inhabitants of Miletus), Priene, Samos, Teos, Colophon, Chios, Erythræ, Phocæa, Clazomene, Lebedos and Melite. This last, as a punishment for the arrogance of its citizens, was detached from the other states in the course of a war levied on it, in a general council, and in its place, as a mark of favor towards King Attalus and Arsinoe, the city of Smyrna was received into the number of Ionian States. These received the appellation of Ionian, after the Carians and Lelegæ had been driven out, from the name Ion, of the leader. In this country, allotting different sites to sacred purposes, they erected temples, the first of which was dedicated to Apollo Panionius.* It resembled that which they had seen in Achaia, and from the species having been first used in the cities of Doria, they gave it the name of Doric. As they wished to erect this temple with columns, and were not acquainted with their proportions, nor the mode in which they should be adjusted, so as to be both adapted to the reception of the superincumbent weight, and to have a beautiful effect, they measured a man's height by the length of the foot, which they found a sixth part thereof, and thence deduced the proportion of their columns. Thus the Doric order borrowed its proportion, strength and beauty from the human figure.† On similar principles they afterwards built the Temple of Diana; but in this, from a desire of varying the proportions, they used the female figure as a standard, making the height of the column eight times its thickness, for the purpose of giving it

* The Bipont Edition—as well as Roe's, Berlin, 1800—has it Neptune. Schneider, however, restores it to Apollo, quoting Hesychius and Wesseling's Herodotus, Clio. 147, where Apollo is called Παναώνιος.

† The tradition concerning Antæus might have furnished Vitruvius, had he been in the right cue at the time, with an origin of the introduction of ox and other skulls into friezes. This character covered the roof of a temple of Neptune with the skulls of Foreigners, whom he slew in engagements with him. Ἰδίως τὸν Ἀνταῖόν φησι τῶν ΞΕΝΩΝ τῶν ἡττωμένων ΤΟΙΣ ΚΡΑΝΙΟΙΣ ἱερέιων τὸν τοῦ Ποσειδῶνος ναόν. So that skulls were used early as ornaments in building. Pindari Carm. Edit. Heyn. Scholia, Tom. 3. fol. 826.

a more lofty effect. Under this new order they placed a base as a shoe to the foot. They also added volutes to the capital, resembling the graceful curls of the hair, hanging therefrom to the right and left certain mouldings and foliage. On the shaft channels were sunk, bearing a resemblance to the folds of a matronal garment. Thus were two orders invented, one of a masculine character, without ornament, the other of a character approaching the delicacy, decorations and proportion of a female. The successors of these people, improving in taste, and preferring a more slender proportion, assigned seven diameters to the height of the Doric column, and eight and a half to the Ionic. That species of which the Ionians were the inventors has received the appellation of Ionic. The third species, which is called Corinthian, resembles in its character the graceful, elegant appearance of a virgin, whose limbs are of a more delicate form, and whose ornaments should be unobtrusive. The invention of the Capital of this order arose from the following circumstance. A Corinthian virgin, who was of marriageable age, fell a victim to a violent disorder; after her interment, her nurse collecting in a basket those articles to which she had shown a partiality when alive, carried them to her tomb, and placed a tile on the basket, for the longer preservation of its contents. The basket was accidentally placed on the root of an acanthus plant, which, pressed by the weight, shot forth, towards spring, its stems and large foliage, and in the course of its growth reached the angles of the tile, and thus formed volutes at the extremities. Callimachus, who, for his great ingenuity and taste in sculpture, was called by the Athenians κατάτεχνος, happening at this time to pass by the tomb, observed the basket and the delicacy of the foliage which surrounded it. Pleased with the form and novelty of the combination, he took the hint for inventing these columns, using them in the country about Corinth," &c.

Whoever reads the above account can give it but little credit. The testimony of Vitruvius on matters which occurred so long before his time, unless authenticated by earlier writers, cannot be received in an investigation similar to that in which we are engaged.—We will now proceed to a consideration of the Progress and Perfection of Grecian Architecture.

ON THE PROGRESS AND PERFECTION OF GRECIAN ARCHITECTURE.

History furnishes us with few means of ascertaining the progress and condition of the fine arts among the Greeks, between the period commonly assigned to the siege of Troy, and that of the time of Solon and Pisistratus, 590 years A.C.* In Greece Proper, it is probable that the advancement was slow, whilst its colonies established on the coast of Asia Minor were making rapid strides towards perfection. Goguet speaks of Asia Minor as the cradle in which architecture was rocked, and the soil on which it grew and flourished, and thinks that we must look to that country for the origin of the Doric and Ionic orders.—This will be presently examined. The Corinthian order, from what we can learn, did not appear till some time afterwards, and is generally allowed to have been the invention of the mother country itself. One of the earliest temples of the Greeks, that of Jupiter at Olympia, must, according to Pausanias,† have been built about 630 years before the Christian era. That of Diana at Ephesus was begun at a period little less remote, if Livy‡ be right in his assertion that it was reared at the time that Servius Tullius was King of Rome; and that date, be it observed, accords with the statements of other ancient writers.§ Notwithstanding the magnitude of these works, the science of mechanics was in its infancy. Even in the time of Thucydides,‖ the powers of the crane, though known, were not compendiously applied for raising weights. Before proceeding more particularly to the view which it is proposed to take of the Greek architectural orders, it may be convenient to state here, that the Greeks bestowed but little attention on their private houses.¶ All

* The Egyptians in the time of Solon were advanced in science. Solon was told by one of their priests that the Grecians were children in science; that they were utterly ignorant of the mythology of other nations; and did not understand their own. Plato in Timæo. Clemens. Strom. Lib. 1.

† Τέκτων δὲ ἐγένετο αὐτοῦ Λίβων ἐπιχώριος, and the intention in erecting the temple is afterwards mentioned. Pausan. Eliac. Pr. c. 10.

‡ "Jam tum erat inclitum Dianæ Ephesiæ fanum: id communiter a civitatibus Asiæ factum fama ferebat." Liv. Hist. Lib. 1, c. 45.

§ Diogenes Laertius, Lib. 2, seg. 103, mentions Theodorus of Samos as the person who advised the foundation of this temple to be placed on layers of chareoal.—Οὗτός ἐστιν ὁ συμβουλεύσας ἀνθρακας ὑποτιθῆναι τοῖς θεμελίοις τοῦ ἐν Ἐφέσῳ. And Theodorus, according to Herodotus, Thalia, Aristotle, de Rep. Lib. 5, c. 11, and Pausanias Arcadic. c. 14., flourished in the time of Polycrates, Tyrant of Samos, a contemporary of Amasis, King of Egypt, 559 B.C.

‖ Thucydid. lib. iv.

¶ Demosthenes, Orat. adv. Aristocratem.

the splendour and magnificence of the art was reserved for the embellishment of their temples and other public buildings.

If the birthplace of the Doric order gave it a name, to which of the provinces which went under the name of Doria is it to be referred, for they were many? To what author shall we turn to enlighten us on this subject, besides Vitruvius, on the very face of whose account we find such a mass of absurdity? It would be ridiculous to suppose that the order was perfected by one person, or in one period, and at this time all the researches that can be made are unfortunately not likely to give us a satisfactory account of the name which it bears. Names are often the last means that should be resorted to for ascertaining the import or origin of the things which bear them.

The detail of the Doric Order is said by a host of writers, with Vitruvius at their head, to have been borrowed from the assemblage of timber framing in a common hut, and that it was the result of copying in stone the form and parts of a wooden building. This, it must be confessed, seems contrary to the ordinary progress of the arts and sciences. Stone buildings would scarcely be the immediate followers of those constructed in timber, where bricks were known; however, if that were the case, the latter must have been carried to great perfection in their forms, arrangement, and proportions, and have attained a certain style and character before they could have been deemed objects worthy of imitation. The observation in the Encyclopédie Méthodique* on this subject is so sensible, that the writer shall speak for himself:—"Tout nous indique qu'une telle metamorphose ne put s'effectuer que par une suite non interrompue, mais très lente d'operations subordonnées à beaucoup de causes, dont les unes peuvent encore se saisir ou se deviner, et dont les autres ont échappé à l'attention même des contemporains, et doivent encore se soustraire aux recherches curieuses de la posterité." In short, says the same writer, if the Doric order could be attributed to an *inventor*, that inventor was a people among whom similar wants existed for a long period, and among whom a style of building was retained suitable to the climate and the habits of their life, and one which time slowly and gradually modified and brought to perfection, on principles rendered sacred by custom.

The system of imitation in the Doric order has the appearance of having been founded on the elementary forms of the hut; but it was guided, if that really be the case, by the same principles which Nature herself adopts in her works, without the aid of which no bounds could have been set to the imagination and caprice of its improvers. In the copy no part can be said to

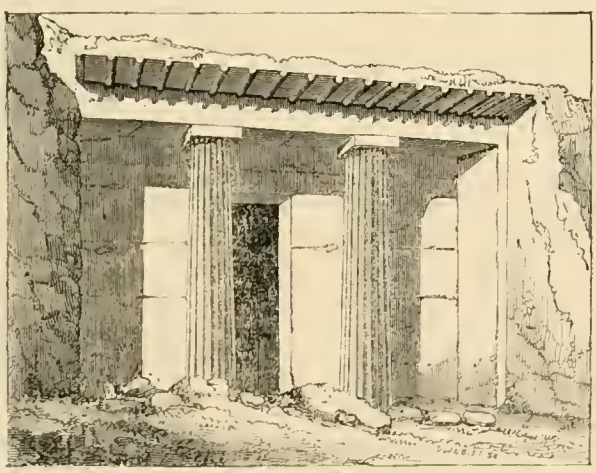
* Art. *Dorique.*

be precisely similar to the model; the former displays sentiment, not calculation. The triglyphs and metopes, which are said to represent what in the original were the ends of beams and the spaces between them, are generally found only in the exterior of the building. The inclination of the mutules, originating, as it is said, in the slope of the rafters, is still preserved, though the front in which they appear be of a nature to require an horizontal arrangement of them. These things show that the artists at least adopted a free and not a servile imitation of the primitive types. One cannot, however, refrain from observing that on an inspection of Denon's plate of the Portico of the Temple of Tentyris,* in the entablature whereof are to be found projections and intervals in its upper division, bearing a striking resemblance to the arrangement of the Doric frieze, a suspicion is induced that the usual hypothesis wants stronger confirmation than it has generally seemed to require.† It is true that the projections in question are in the form of reeds, but the general effect, especially when we observe the way in which the intervals are

* Voyage de l'Egypte, plate 14.

† I am indebted to a very worthy friend, Mr. Charles Barry, for the following interesting and valuable note, which I shall give in his own words, expressing my regret that he has not hitherto favored the public with some portion, at least, of the information he has acquired in the course of those extended travels and researches in Greece, Egypt, and Palestine, which he takes so much pleasure in liberally communicating to his friends.

"The tombs of Benihassan are excavated in a rock a short distance from the Nile, on its right bank, about 48 French leagues south of Cairo. Two of them have architectural fronts, consisting of two fluted columns in antis, similar to the accompanying Sketch No. 1. The columns are about $5\frac{1}{2}$ diameters in



No. 1.

height. The flutes are shallow, and 20 in number, and the capital consists of an abacus only. There are no indications of a base or plinth. Above the architrave, which is plain, is a projecting ledge of the rock, in the form of a cornice, the soffit of which is sculptured apparently in imitation of a series of reeds laid

ornamented, cannot fail to bring to mind the arrangement of the Doric Frieze and Cornice, not to mention the reeding at the external angles, which corresponds with the angular triglyphs of the Doric order. The introduction of the angular triglyph seems to have been an anomaly which could not have arisen, had the primitive type been what we have just seen. What could be more absurd than to give the end of the same beam two faces at right angles with its longitudinal direction. On the supposition of the type being the hut, and of the detail of the order being derived from the component parts of a

transversely and horizontally for its support. This was probably the system originally adopted for the support of the flat mud roof of the primitive Egyptian hut, and may perhaps have given rise to the dentils and mutules of Greek and Roman architecture. In the interior of several of the tombs are some very remarkable columns supporting the rock above, which forms the ceiling. One of them is represented in Sketch No. 2. They seem very satisfactorily to explain the origin of a column of like form peculiar to Egyptian Architecture, and employed in many of the Egyptian temples. The prototype would appear to have consisted of four large reeds of the Nile, placed upon an angular block, and tied together by cords near the top, forming thereby the capital. Small sticks are introduced between the reeds at the place of ligature, to render the figure of a more circular form, and afford the means of firmly tying the whole together. The top is crowned by a square abacus, and the reeds being there confined, the effect of any incumbent weight upon them would be to produce the form represented in the sketch. A slight deflection of the shaft would also take place, and may not this account for the origin of the entasis of Columns.

No. 2.

"Another remarkable instance of fluted Egyptian columns occurs in an excavated temple at Kalaptchic on the left bank of the Nile, about 25 French leagues above the first cataracts. The temple consists of two chambers, the largest of which has its roof or incumbent rock, supported by two of the columns alluded to, as in Sketch No. 3. The abacus is square, and 11 inches thick; the shaft, which has a trifling diminution, is 7 feet 8 inches high, and 3 feet 2 inches diameter. The circumference is in 24 divisions, whereof 4, which are at right angles with each other, are flat faces, covered with hieroglyphics, and the other intervening ones are sunk into flat elliptical flutes, quarter inch deep. On the top and bottom of the shaft is a plain horizontal band. The plinth is circular, it projects considerably beyond the shaft, and is chamfered on the top edge.

No. 3.

"There are several instances of polygonal shafts in the Egyptian temples. A remarkable one is in a temple at Eluthias, on the right bank of the Nile, a few miles south of Esneh, where, in the interior of a large vestibule, the whole of the roof is supported upon polygonal columns of sixteen sides.

"There is every reason to suppose, from the nature of the sculpture and the hieroglyphics, that the tombs and temples alluded to are of very remote antiquity, or during the most flourishing period of the Arts in Egypt. The general resemblance of the fluted columns to those of the Grecian Doric Order is manifest, and in addition to many other remarkable indications in the Egyptian Temple, clearly point to Egypt as the source of both Greek and Roman Architecture.

"C. Barry."

hut, the Romans, and afterwards the restorers of art in Italy, were justified in altering this defect, which was the father of many more, in the arrangement of the intercolumniations. It is almost needless to observe that the materials of Egyptian architecture, from the great scarcity of wood in the country, must have generally been stone or brick. The large blocks of the former material precluded the necessity of making timber roofs, and it is therefore hardly reasonable to seek the origin of the projections of the entablature at Tentyris, and of other more ancient examples, in the ends of beams.

Proportions, and the rules necessary to be observed for the purpose of giving them elegance and effect, are only necessary to preserve uniformity in the principles on which we proceed, and for preventing too great a latitude of imagination in the productions of art. We may be assured that whenever these become so fixed in any country, that its artists feel fettered by the restrictions which too rigid an adherence to ancient rules imposes, invention and taste are extinguished. The extraordinary difference which we find in the proportions and parts of the same order, plainly shows that the artists of Greece considered themselves restricted only in the general proportions. This cannot be more clearly shown than by a reference to the following table of seventeen examples of the Doric order. In the first column are the names of the edifices; the second column contains the height of the columns in English feet; the third the height of the columns in terms of their lower diameter; and the fourth, the height of the capital in similar terms. The fifth column gives the diameter of the column, taken at the top of the shaft, also in terms of the lower diameter.

NAME OF EDIFICE.	Height in English feet.	Diameters high.	Height of Capitals.	Diameter at top of Shaft.
Temple at Corinth	23·713	4·065	·405	·73
Hypæthral Temple at Pæstum	28 950	4·134	·549	·687
Enneastyle ditto	21·000	4·329	·500	·661
Greater Hexastyle Temple at Selinuns	32·678	4·361	·490	·769
Temple of Minerva, Syracuse	28·665	4·410	·486	·762
Octastyle Hypæthral Temple, Selinuns	48·585	4·572	·450	·592
Temple of Juno Lucina at Agrigentum	21·156	4·605	..	·755
Temple of Concord, Agrigentum	22·062	4·753	·487	·767
Hexastyle Temple at Pæstum	20·353	4·795	·564	·717
Temple of Jupiter Panhellenius	15·796	5·397	·486	·742
Parthenon	34·232	5·566	·459	·782
Temple of Theseus, Athens	18·717	5·669	·502	·772
Temple of Minerva, Sunium	19·762	5·899	·372	·762
Temple of Apollo, Island of Delos	..	5·931	..	·754
Doric Portico of Augustus, Athens	26·206	6·042	..	·780
Temple of Jupiter Nemeus	33·932	6·515	..	·816
Portico of Philip of Macedon	19·330	6·535	·480	·825

The above view of the order exhibits some remarkable peculiarities on which it will be necessary to remark, after submitting another Table showing the proportion of the Entablature and its parts, to the height of the Column, in terms of the Diameter.

NAME OF EDIFICE.	Height of Architrave.	Of frieze.	Of Cornice.	Of Total Entablature.
Temple at Corinth	·8107	wanting	wanting	
Hypæthral Temple at Pæstum	·6934	·6761	·3714	1·7409
Enneastyle Temple at Pæstum	·7922	·6926	wanting	
Temple of Juno Lucina, Agrigentum	·9195	·7440	wanting	
Temple of Concord, ditto	·7787	·7711	·4174	1·9762
Hexastyle Temple at Pæstum	·7583	·7461	·4123	1·9167
Temple of Jupiter Panhellenius	·8562	·8578	wanting	
Parthenon	·7195	·7188	·5392	1·9775
Temple of Theseus	·8296	·8209	·3130	1·9644
Temple of Minerva, Sunium	·8072	·8072	·3134	1·9278
Portico of Augustus	·6647	·7051	·3544	1·7242
Portico of Philip of Macedon	·6394	·8107	·4169	1·8670

From an inspection of the above Table it appears that the height of the Doric column, speaking in round numbers, varies from four diameters in height to six and a half, and its upper diameter from seven to eight-tenths of the inferior diameter. The heights of the capitals in terms of the lower diameter, vary from thirty-seven to fifty-six hundredths.

It has been said* that the height of the capital in terms of the upper diameter of the shaft will afford some indication of the comparative antiquity of an example. But after the very singular and concurring proportions of the entablatures just exhibited in the fourth column of the second table, wherein we find only so slight a difference as a quarter of a diameter among eight examples, there cannot remain a doubt that the ancients considered the relation to the lower more than to the superior diameter of the column.

The best method, however, of ascertaining the antiquity of an example is by a view of the progress which would naturally take place in the art, rather than by comparison of the parts with each other. The comparison, however, of the height of columns themselves with their lower diameters, and of their height with that of the entablature, is the natural mode of investigating their antiquity. In the entablatures of the second table it will be seen, that, com-

* Lord Aberdeen's Inquiry, page 152.

pared with the total height of the ORDER, the most massive is one-third thereof, and the lightest one-fourth, and these, it must be observed, nearly coincide with the heaviest and slenderest columns. Neither are those other marks which are said to indicate the antiquity of columns, such as the three grooves found under the capitals, nor the form of the guttæ, to be relied on. As to the latter they are different even in the same building. In one of the temples at Pæstum, the sofite of the corona is formed into coffers, and has no mutules at all.

It has been recently discovered* that the columns of the Parthenon have an ΕΝΤΑΣΙΣ, or swelling. An examination of several examples with the view of comparing them with each other, would be not only extremely interesting, but would serve to illustrate Vitruvius† on this point, which was a refinement in art, though perhaps not early practised. It might perhaps determine the comparative ages of buildings more satisfactorily than any of the means which have hitherto been resorted to for that purpose.

In the Temples of Pæstum, Corinth, and Segesta, the intercolumniations are about equal to the diameter of the column, and they are nearly the same at the Parthenon. At the Temple of Theseus they exceed that width by about a quarter of a diameter, and in an example at Syracuse they are somewhat less than a diameter.

Two or three smaller matters remain to be noticed. These are the varieties in the forms of the echinus of the capital, and in those of the flutes. The echinus is sometimes inclined at once inward by a straight line, or by a slight curve without any double flexure. It is sometimes very much extended in its projection from the shaft; whilst in other examples we find it nearly approaching the quarter round of the Romans. When curved, the contour will be found composed of segments of curves formed by the section of a cone. The form of the flutes on the plan is variable; we sometimes find them segments of circles, and at other times they are of a curvilinear form, partaking somewhat of the ellipsis. Their number also varies. In the examples at Athens, the number is twenty; whilst at Pæstum the exterior order of the great temple has twenty-four, the lower interior order twenty, and the upper interior only sixteen.

Those who from a passage in the Odyssey‡ have discovered that the

* By Mr. C. R. Cockerell, whose liberality in communicating the result of his researches I have much pleasure in acknowledging.

† Lib. 3, c. 2.

‡ Ἔγχος μέν ῥ' ἔστησε φέρων πρὸς κίονα μακρὴν
Δουροδόκης ἔντοσθεν ἐυξόου,— Odyss. A. 127.

fluting of columns was made for the purpose of receiving and holding the spears of the persons whose duties led them to the temple, and that this want gave rise to the invention, do great injustice to the ingenuity of the Grecians. It is here unnecessary to argue in refutation of so strange a conjecture. We will only in passing observe, that a more inconvenient place for the ΔΟΥΡΟΔΟΚΗ could not possibly be assigned than such a situation, nor one where obstruction would have been more unnecessarily created than in the comparatively narrow intercolumniations of the Grecian temple; nor one, if the spears were to stand in contact with the recess of the channel, in which they would have been more liable to be constantly displaced by accident. It is probable that the fluting is nothing more than an improvement which Grecian refinement would make on the polygonal column of Egypt.

Until after the defeat of Xerxes, when the active spirit of the Athenians languished for an object, we do not find that singular elegance in their works in the fine arts, which through the exertions and fostering hand of Pericles appeared about 430 years before Christ. The Peloponnesians and their colonies had erected the temples at Corinth, Nemea, Pæstum, Syracuse, and other places in Sicily. From the introduction of architecture into Greece, a period of little more than three centuries elapsed before it burst forth with astonishing lustre, and was raised to the summit of perfection.

In the country that gave birth to the Doric Order, speaking of it as applied to Greece generally, it is not difficult to imagine that the art was not destined to be restrained within the limits of a single order; it was in truth impossible that it should have remained within such narrow bounds. It is more than probable that the orders advanced almost *pari passu*, and it would be difficult to prove that the Ionic Order is of much less antiquity than that which has just been examined. Except in the capitals of the Ionic and Corinthian Orders, one can scarcely say in which of the three the greatest degree of richness is manifest, more especially when we consider how exquisitely the metopes were sometimes decorated. On a glance at the capitals in question, and a comparison of them with many examples of the corresponding member in Egyptian Architecture, one would suppose there can be no doubt on their origin.

It may be, and is, indeed, true, that the Ionian colonies gave a preference to the Ionic Order: so did the Romans to the Corinthian, and yet whoever said that the Romans invented the Corinthian Order? The writer in the Encyclopédie Methodique* seems to think that Persia comes in for some share

* Art. *Ionique*.

of the invention of the Ionic capital: "Toutefois les dessins que nous possedons des Monumens de l'Inde, nous font voir entre les diverses couronnements de colonnes, imaginés par la fantaisie dans cette contrée, certains chapiteaux a oreilles retombantes en forme de volutes, que peut-être quelques critiques prendroient pour des imitations du chapiteau Ionique. Cette forme de chapiteau n'auroit elle pas été plutôt en Grece, une derivation du goût Asiatique."

The same species of variety which has been noticed in the different examples exhibited of the Doric, is not less observable in those of the Ionic order, as may be seen by a comparison of the Ionic edifices of Athens with those on the coast of Asia Minor; but it is not necessary to enter into the subject so much at length as we have done in respect of the Doric Order.

Aware that the angular Ionic capital has its admirers, it may be proper to state that many men of taste are of a different opinion, and that it has been thought a defect which should be avoided in modern works. In a peripteral temple, much of the beauty would have been lost if the baluster side of the capital had been in the same direction as that of the flanks. The expedient which the Greeks adopted to remedy this evil was ingenious as well as judicious. It should, however, never be employed in porticoes which do not project more than one intercolumniation, or in peripteral buildings.

The most ancient temple of the Ionic Order has been said to be that of Juno at Samos. Herodotus* says it was considered one of the most stupendous edifices erected by the Greeks. It is but recently that any information has been obtained respecting this temple, or rather its ruins.† It appears to have been built about 540 years before the Christian era. The octastyle Temple of Bacchus at Teos, that of Apollo Didymæus, near Miletus, and of Minerva Polias at Priene, are the chief temples of the colonies of which we know anything at this period. Hermogenes, the architect of the Temple of Bacchus, is said by Vitruvius to have originally intended it to have been of the Doric Order, but that, even after the preparation of all the materials, thinking that the Ionic was more suitable for a temple, he laid them aside and employed the order in question.‡ This, however, is a story not authenticated by any other author, as we believe, and one may or may not, knowing the character of the writer in these respects, treat it as Hermogenes is said to have treated his Doric materials.

* Herodotus, Euterpe.

† Second Edition of the Ionian Antiq., Vol. I. c. 5.

‡ "Nam is, cum paratam habuisset marmoris copiam, in Doricæ ædis perfectionem, commutavit ex eâdem copiâ et eam Ionicam Libero Patri fecit." Vitruv. lib. iv. c. 3. Edit. Schneider, 1807.

Proceeding to a more minute investigation of the three Athenian examples, the little Temple on the Ilyssus, the Temple of Minerva Polias, and the Portico of that of Erectheus, the following table will show the height of the columns in English feet. The second column contains the height of the shaft and capital in terms of the lower diameter, the third the height of the capitals in similar terms, the fourth the diameter at the top of the shaft.

EDIFICE.	Height of the columns in English feet.	Diameters high.	Height of Capitals.	Diameter at top of shaft.
Temple on the Ilyssus	14·694	8·241	·658	·850
Temple of Minerva Polias	25·387	9·119	·716	·833
Temple of Erectheus	21·625	9·337	·775	·816

In the Table subjoined we shall have a view of the height of the Entablatures.

	Architrave.	Frieze.	Cornice.	Total.
Temple on the Ilyssus	·916	·816	·533	2·265
Temple of Minerva Polias	·858	·808	·621	2·287
Temple of Erectheus	·901	·956		

The height of the Ionic column varies in the three examples quoted, from eight diameters and a quarter to nearly nine and a half in height, and the upper diameter of the shaft from full eight-tenths to seventeen-twentieths. The want of similarity in the capitals renders them unfit for comparison with each other. The mean height of the entablature is about a fourth of the height of the whole order. The cornice of the Grecian Ionic may be generally considered as bearing a constant ratio to the whole height of the entablature as two to nine. The architrave is found, in most examples, divided into fasciæ, below the cymatium.

The Base, a figure which has not yet been considered, requires a little of our attention. In the examples at Athens we find it consisting of two tori, with a scotia or trochilus between them. A fillet above and below the scotia separates it from the tori. The former fillet is in general coincident with a vertical line let fall from the extreme projection of the superior torus. The lower fillet in the temple on the Ilyssus projects about half way between the incavation of the scotia and the extreme projection of the lower torus. The height of the scotia and two tori are nearly equal. In the temple just named

a bead and fillet are set on the upper torus to receive the shaft of the column. It will not escape observation, that in the Temple of Erectheus, as well as that on the Ilyssus, the lower torus is uncut, whilst the other is fluted horizontally, and that in the bases of the Temple of Minerva Polias, the upper torus is sculptured with a guilloche. The form of the scotia is a portion of a curve formed by one of the conic sections. The base thus described has been usually denominated ATTIC. It was, however, used in the colonies, as in the Temple of Bacchus, at Teos, though in that the upper torus is not sculptured. The bases of the Temple of Minerva Polias at Priene, and that of Apollo Didymæus near Miletus, are of very different and singular form. The upper torus of the former is to the height of the base as ·427 nearly to 1·000, and its contour is not parabolic. The lower half is divided horizontally into four flutes, below this are two scotiæ separated from each other by two astragals and fillets at the top and bottom of each, except where they join the upper torus above, and the plinth below.

The volute, which so distinguishes this order from the others, is found with considerable varieties. In the edifices of the Ilyssus and the Temple of Minerva Polias at Priene, also of Apollo Didymæus, this member contains only one channel between the revolutions of the spiral, whereas in those of Erectheus and Minerva Polias at Athens, each volute has two distinct spirals with channels between them. In the former of these two the column terminates with an astragal and fillet just below the level of the eye of the volute; in that of Minerva Polias, with a single fillet. In each of them the neck of the capital is ornamented with honeysuckles.

The flutes of the columns are usually of an elliptical form, and their number twenty-four. In the Temples of Minerva Polias and Erectheus at Athens, those of Bacchus at Teos, and Minerva Polias at Priene, they descend into the apophyge of the shaft of the column. They are, moreover, distinguished from the Doric flutes by fillets separating them from each other.

No notice has been thought necessary respecting the Tomb of Theron at Agrigentum, which is a singular instance of the mixture of the Ionic column with a Doric entablature. Some antiquarians may perhaps admit "the antiquity of this monument, or the truth of the appellation it has received," but surely no architect who has philosophically investigated the principles of his art will be inclined to concur in any such opinion.

In the Corinthian Order, as in the Ionic, the chief distinguishing feature is the capital. Long previous to the age in which Callimachus, its reputed inventor, existed,—perhaps even before capitals or columns themselves were

known to the Greeks,—leaves of the palm-tree, flowers of the lotus, and even volutes, were applied as ornaments in the capitals of Egypt. The form of the bell itself, of the Corinthian capital, bears no trifling resemblance to the contour of the lotus flower.* The difference of character between the Greek Corinthian and the Egyptian capital lies in the height. The Greeks, who so well knew how to improve and adopt, or reject, endowed their capital with a lightness and elegance to which the inventions of the Egyptians, perhaps from moral causes, were never carried; but the similitude between them is such that there never was a case which stood less in need of historical proof to identify the source of the invention, if it be but granted that there was the slightest intercourse between the two countries—a point which is sufficiently notorious.

Unfortunately, our knowledge of the Greek Corinthian is very limited, and though the delicacy of construction in this order would have necessarily tended to an earlier destruction and decay of its examples than would have been the case with those of the Doric and Ionic orders, yet, considering the very few Corinthian ruins which remain among so many others, it is not presuming, perhaps, too much, to conclude that it was not so great a favorite among the Grecians as the other two orders.†

The only examples which can be produced of this order in a genuine Greek taste are, the Tower of the Winds and the Choragic Monument of Lysicrates at Athens; but the former of these can scarcely be denominated Corinthian; we shall, therefore, be obliged to confine our observations to the latter, as the only example before Greece was subdued by the Romans.

In the Choragic Monument,

The height of the columns in English feet is	11·637
The height of the column in terms of the diameter	10·318
The height of the capital in terms of the diameter	1·216
The diameter of the shaft at top in terms of the lower diameter	0·833
Height of the architrave	0·85
——————— frieze	0·483
——————— cornice	0·833
Total height of the entablature	2·166

* Denon, Plates 44 and 45; also Quatremere de Quincy's elegant Dissertation, "De l'Architecture Egyptienne, considerée dans son origine, ses principes, et son gout." 4to. Paris, 1803. Plates 1 and 2.

† Pausanias says it was used by Scopas for the upper range of columns of the Temple of Minerva at Tegæa. Ὁ μὲν δὴ πρῶτός ἐστιν αὐτῷ κόσμος τῶν κιόνων Δάριος, ὑπὲρ ἐπὶ τούτῳ Κορίνθιος. ἐστήκασι δὲ καὶ ἐκτὸς τοῦ ναοῦ κίονες ἐργασίας τῆς Ἰώνων. Ἀρχιτέκτονα δὲ ἐπενεγκάμην Σκόπαν ἀντὸν γενέσθαι τὸν Πάριον. κ. τ. λ. Pausan. Arcadic.

The height of the entablature here becomes somewhat less than a fifth of the total height of the order. The base varies little in its form from that of the Ionic order, but there is no horizontal fluting in the upper torus.

The celebrated bas-relief of the Villa Albani is a proof that the Corinthian capital was known before the time of Callimachus. Its style and execution stamp it as a very early work, and I cannot agree with a noble writer,* that the execution of the Corinthian temple is at all out of *keeping* with the other parts of the work. These capitals, which are without foliage, immediately remind us of the Egyptian capital.† On the capitals of the Athenian edifices we cannot conclude more properly than in the words of a writer in the Encyclopédie Methodique :‡—"Le feuillage qui decore les chapiteaux des deux edifices d'Athénes, est evidemment le feuille de l'Olive. On ne s'etonnera pas que l'arbre consacrée à la déesse tutélaire d'Athénes ait prété sa feuille aux premiers chapiteaux Corinthes de l'Attique; cette feuille est encore aujourd'hui consacrée a l'ordre Corinthien, et les architectes même en preferent la forme a celle de l'Acanthe."

Besides the orders which have been enumerated, the Greeks occasionally used the figures denominated Caryatides, for the support of the entablature. The following account of their origin is not without interest.

Vitruvius,§ Book I., c. 1, on the introduction of statues for supporting an entablature, observes that "Carya, a city of Peloponnesus, took part with the Persians against the Grecian states. When the country was freed from its invaders, the Greeks turned their arms against the Caryans, and upon the capture of their city, put the males to the sword, and led the women into captivity. The architects of that time, for the purpose of perpetuating the ignominy of this people, instead of columns in the porticoes of their buildings, substituted statues of these women; faithfully copying their ornaments, and the drapery with which they were attired, the mode of which they were not permitted to change."

Vitruvius is not, however, supported in the above account by any writer on the affairs of Greece, and it is clear that the origin of these statues for architectural purposes is of much higher antiquity than the invasion of Greece

* Lord Aberdeen's Inquiry, page 175.

† The reader may refer to a representation of this bas-relief in the "Monumenti inediti" of Winckelmann.

‡ Art. *Corinthien.*

§ This account is reprinted from an unpublished pamphlet by the author, written in 1820, and printed in the year 1821, entitled, "Cursory Remarks on the Origin of Caryatides," addressed to John Britton, Esquire, F.S.A., &c.

by the Persians. Herodotus,* indeed, says that some of the states sent to Xerxes the required offering of earth and water; but no mention is made of Carya, nor, consequently, of the ignominious treatment it met with, which must have been too notorious, if true, to have been unknown, and as a matter of history too curious to have been passed over in silence. Whether the use of statues to perform the office of columns travelled into Greece from Egypt or India, may be left for the discussion of those who respectively support the claims of one or the other of those countries to a priority of skill in architecture; both will, however, furnish examples of their application. In the latter country we have the authority of Diodorus Siculus, for two immense specimens. Speaking of the tomb of King Osymandyas, Diodorus says,† that it was "ten stadia in circumference; its entrance of variegated stone; two hundred feet long, and forty-five cubits high. Hence you proceed to a stone Peristylium, four hundred feet square, supported by animals, sixteen cubits high, each in one stone, instead of columns, and carved after the ancient fashion." Again,‡ speaking of Psammeticus, he says, "Having now obtained the whole kingdom, he built a propylæum on the east side of the temple, to the god at Memphis; which temple he encircled with a wall, and in this propylæum, instead of columns, substituted colossal statues *κολοττοὺς ὑποστήσας*, twelve cubits in height."

The use of statues, and the representations of human and other figures, is a prominent feature in Egyptian architecture. The temple at Ipsambul is indeed a striking proof of it. In India many instances of a similar use of statues are to be found; as in the excavations at the temple near Vellore,§ described by Sir C. Mallet, where heads of lions, elephants, and imaginary animals, project forwards for the apparent purpose of supporting the roof of the cave of Jugnath Subba; and at Elephanta, colossal statues are ranged along the sides, as high as the underside of the entablature. It has before been mentioned that it is not here necessary to settle the comparative

* See his Polhymnia, fol. 421. Edit. Gronovii. They were nine in number. The Thessalians, Dolopians, Enians, Peræbi, Locri, Magnetes, the Melians, Achæans of Phthiotis, Thebans, and the rest of the people of Bœotia, except the Thespians and Plataeans.

† Tom. I. f. 56. Wesseling. Edit. *Δέκα σταδίων φασὶν ὑπάρξαι βασιλέως μνῆμα τοῦ προσαγορευθέντος Οσυμανδύου. τούτου δὲ κατὰ μὲν τὸν ἴσοδον ὑπάρχειν πολῶνα λίθου ποικίλου, τὸ μὲν μῆκος δίπλεθρον, τὸ δ' ὕψος τετράκοντα καὶ πέντε πηχῶν ἐυλθόντι δὲ αὐτὸν εἶναι λίθινον περίστυλον τετράγωνον, ἑκάστης πλευρᾶς οὔσης τεττάρων πλέθρων. ὑπηρεῖσθαι δὲ ἀντὶ των κιόνων ζῴδια πηχῶν ἑκκαίδεκα μονόλιθα, τὸν τύπον τὸν ἀρχαῖον τρόπον εἰργασμένα.*

‡ Ibid.

§ Asiatic Researches, Vol. VI.

dates of Egyptian and Indian architecture; yet most agree that the latter was anterior to all except that of Egypt, and many that it is more ancient than that of Egypt itself. The object at present is to show—their early origin being, it is supposed, satisfactorily settled to have been of much higher antiquity than Vitruvius makes it—that the first statues which could be strictly called Caryatides were either applied to temples of Diana, or were representations of virgins who were engaged in her worship.

KAPYA, the nut-tree, Nux Juglans, which Plutarch says,* received its name from its effects on the senses,† was that into which Bacchus, after cohabitation with her, transformed Carya, one of the three daughters of Dion, King of Laconia, by his wife Iphitea. The other two daughters, Orphe and Lyco, were turned into stones, for watching too closely the intercourse of their sister with the lover. Diana, who is supposed to have made the Lacedæmonians acquainted with this story, as well perhaps as with the excellence of the fruit of the tree, was therefore worshipped by that people under the name of Diana Caryatis.‡

There is, however, another account of the origin of the name of Diana Caryatis, which does not at all affect our hypothesis. It is to be found in one of the old commentators on Statius,§ and is to the following effect:—Some virgins being threatened with danger, whilst celebrating the rites of the goddess, took refuge under the branches of a nut-tree, Καρύα; in honor and perpetuation of the memory of which event, a temple was raised to Diana Caryatis. If this, however, allude to the famous interposition of Aristomenes, to

* Symposiacon, lib. ii. Τὴν τε γὰρ καρύαν οὕτως ὀνόμασαν, ὅτι πνεῦμα βαρὺ καὶ καρωτικὸν ἀφιεῖσα. κ. τ. λ.

† Κάρος, Sopor.

‡ See the note of Servius, Virg. Ec. 8. Edit. Burman. Vol. I. f. 128: it is on the passage, "Sparge marite nuces," and as follows:

"Sane fabula de nucis origine talis est: Dion Rex Laconiæ fuit, qui habuit uxorem Iphiteam Progna filiam; quæ cum Apollinem summo cultu et reverentia hospitio recepisset, ille remunerari volens circa se hospitum cultum, tribus filiabus eorum, quæ Orphe, Lyco et Carya appellatæ sunt, divinationem concessit, adjecto ne proditrices numinum esse vellent; neve quærerent quod esset nefas scire. Post Liber Pater adveniens, a Dione vel ejus uxore receptus hospitio est, qui cum amata a se Carya coitum miscuit: sed cum inde ægre Liber profectus esset, cogente amoris impatientia denuo ad hospites redit, causam prætendens dedicandi fani, quod ei Rex voverat; sed Lyco et Orphe, intellecto circa sororem Caryam Liberi amore, eam custodire cœperunt, ne cum Libero ei esset copia coëundi; quas cum Liber Pater moneret, terreretque, ut saltem præcepta Apollinis custodientes, pertinacem diligensiam compescerent, videretque ab his et sororem acrius custodiri, et suum secretum studiosius inquiri, Orphen et Lyco, immisso furore, ad Taygetam montem raptas in saxa convertit. Caryam vero quam amaverat, in eodem monte in arborem sui nominis vertit, quæ Latine nux dicitur; quod postea Diana ita factum Laconas docuit. Unde templum Caryatidi Dianæ a Laconibus consecratum."

§ Barthius, lib. iv. v. 225.

protect some Spartan virgins, who were taken by his soldiers, it is not perhaps, quite borne out by the words of Diodorus. It is hardly necessary to observe that Aristomenes lived 671 years before Christ, and consequently 150 years before Darius, the first invader of Greece.

Salmasius says, "Diana was worshipped in that place, Carya near Sparta, under the name of Diana Caryatis, and that at her temple and statue the Lacedæmonian virgins had an annual festival, and danced according to the custom of the country."* Hence, he continues, arose the name given to those statues, which, according to Pliny,† were made by Diogenes of Athens, for decorating the Pantheon at Rome.

Returning, however, to the subject, it is to be observed, that there was a temple to the goddess at Carya, of which Pausanias gives the following account in his Laconics:—"The third turning on the right leads to Carya, and the sanctuary of Diana, for the neighbourhood of Carya is sacred to that goddess and her nymphs. The statue of Diana Caryatis is in the open air, and in this place the Lacedæmonian virgins celebrate an annual festival with the old custom of the dance."‡ The note of Kuhnius, on this passage, after a reference to Hesychius, contains the following notice: "Caryatides etiam dicuntur Lacænæ saltantes, sinistrâ ansatæ, uti solebant Caryatides puellæ in honorem Dianæ."

Some persons have supposed that the assemblage of peasants on the celebration of these dances, gave rise to the pastoral poems termed Bucolics, from their singing on those occasions Βουκολισμοὶ, pastoral poems, from Βουκόλος, a neatherd;—such was the opinion of Probus;§ and Hoffman,‖ to whom I am much indebted for my information on this subject, quotes the following passage from Statius in corroboration of it:—

> "Hujus Apollineæ currum comitantur Amyclæ.
> Quos Pylos, et dubiis Malea vitata carinis,
> Plaudentique habiles Caryæ resonare Dianæ." Thebaid. Lib. 4, v. 223.

* Exercitationes Plinianæ, in Sol. Polyhist. 603 et seq.

† Lib. 36, c. 57. "Agrippæ Pantheum decoravit Diogenes Atheniensis; et Caryatides in columnis templi ejus probantur inter panca operum: sicut in fastigio posita signa, sed propter altitudinem loci minus celebrata." There seems to be some doubt as to the precise situation in the building which these statues occupied. I confess I am fully satisfied with the place assigned to them by Fontana *De Pantheo aliisque conspicuis veteribus Fanis.* Romæ, 1694, viz. in the second or upper order of the interior, now occupied by pilasters.

‡ Laconic. c. 10. "Τρίτη δὲ ἐκ τῆς ὁδοῦ τῆς εὐθείας ἐμβολὴ κατὰ τὰ δεξιὰ ἐς Καρύας ἄγει, καὶ ἐς τὸ ἱερὸν τῆς Ἀρτέμιδος. τὸ γὰρ χωρίον Ἀρτέμιδος καὶ Νυμφῶν ἐστιν αἱ Κάρναι. καὶ ἄγαλμα ἕστηκεν Ἀρτέμιδος ἐν ὑπαίθρῳ Καρνάτιδος· χοροὶς δὲ ἐνταῦθα αἱ Λακεδαιμονίων παρθένοι κατὰ ἔτος ἱστᾶσι, καὶ ἐπιχώριος αὐταῖς καθέστηκεν ὄρχησις."

§ Vitâ Virgilii.

‖ Lexicon, in loco.

Plutarch, in his life of Artaxerxes, relates that after Clearchus had fallen, through treachery, into the hands of Tissaphernes, he gave Ctesias a ring, engraven with the representation of a dancing Caryatid.*

From the foregoing observations, it may be reasonably inferred, that the statues called Caryatides were originally applied to, or used about, the temples of Diana; and instead of representing captives or persons in a state of ignominy, were in fact nothing more than figures of the virgins who celebrated the worship of that goddess. It is most probable that after their first introduction, other figures in buildings sacred to other divinities, gradually came into use, as in the Pandroseum, where it is likely that they are the representations of the virgins who assisted at the Panathenæa, and were called Canephoræ.

However appropriate these figures were in early days, it may be a fair question for discussion how far their application to modern purposes is in good or bad taste. Their exclusion from sacred buildings at least appears absolutely necessary, the allusion they have to heathen worship seeming sufficient, one would suppose, for their rejection. They may, peradventure, be more suitable and in character in palaces and theatres, where parade and pageantry are the leading features. Their introduction, for instance, at the Louvre, is far from being obtrusive or disagreeable.

The inclined sides of the roof of the Greek temple continuing through to the two ends, formed a pediment, which was often decorated by the hand of the sculptor. It seems manifest that the angle at which a roof should be inclined to the horizon, so as to shelter effectually the interior of the building from the effects of the rain and snow, depends on the climate to which the building is to be subjected. Thus, greatly inclined roofs are necessary only in cold and temperate climates. In hot climates we find the dwellings covered with terraced roofs, which are there sufficient protection against the elements; but as we advance northward a greater slope is necessary, and will or ought to be found of increased declivity the greater the distance from the equator. That this principle has operated on the styles of architecture in different countries is evident from a comparison of the Gothic of this country and of Germany with that of more southern latitudes. This will account for the low elevation of the pediment in the Grecian temples, in which we find the inclination of the roofs admirably adapted to the climate in which they are erected.†

* "Εἶναι δὲ γλυφὴν ἐν τῇ σφραγίδι Καρυατίδας ὀρχουμένας."

† "Capitolii fastigium illud, et cæterarum ædium, non venustas, sed necessitas ipsa fabricata est. Nam cum esset habita ratio, quemadmodum ex utraque tecti parte aqua delaberetur; utilitatem templi,

This point has been exceedingly well treated in the Encyclopédie Methodique,* where the reader will find a table showing the inclination which should be assigned to roofs in the principal cities of Europe. The table is adjusted with reference to their different climates, and the length of the longest day at each place. The results correspond in a singular manner with the practice of the ancients, as will be seen by the following extracts.

The inclination of a roof for the latitude of Athens should be $16\frac{1}{2}$ degrees; comparing this with

	Degrees.
The Temple of Erectheus, which is	$15\frac{1}{2}$
The Temple of Theseus	15
The Parthenon.....	16
Propylæa	$14\frac{1}{2}$

we may see how closely the proper practice of the art follows the exigencies of Nature herself. Though it is rather foreign to this investigation, it is impossible to refrain from subjoining a few Roman examples, wherein the climate required, according to the table, an inclination of twenty-two degrees.

	Degrees.
That of the Pediment of Septimius Severus is actually	22
Temple of Concord, and also of Mars Ultor	$23\frac{1}{2}$
Temple of Fortuna Virilis.....	24
Pantheon	24
Temple of Antoninus and Faustina	24

The most important discovery in architecture, in respect of its results, that was ever made, was the invention of the arch. When or where it was invented is quite uncertain. This is a subject which has occasioned much discussion, and perhaps will, at this remote period, never be satisfactorily settled. It is, however, now pretty generally agreed that it did not appear till after the age of Alexander. Visconti, nevertheless,† on the authority of a passage in Plutarch,‡ assigns the period of the invention to the age itself of Alexander. "The perfect arch," says a writer who has been often quoted,§ "appears to have been comparatively of late birth. The want of a name for it, properly Greek, in so copious a language, and so ready for all occasions, would

fastigii dignitas consecuta est: ut, etiam si in cœlo Capitolium statueretur, ubi imber esse non posset, nullam sine fastigio dignitatem habiturum fuisse videatur."—Cic. de Oratore, Lib. 3, c. 46.

* Art. *Comble.*

† Mémoire sur les Ouvrages de Sculpture dans la Collection de Milord Comte Elgin. London, 1816, p. 127.

‡ Ἐκκόψας δὲ τὰς ὑπὸ τὴν ἀσπίδα ψαλίδας κ. τ. λ. Plut. Agis et Cleomen.

§ Principles of Design in Architecture.

suffice to show how little the thing was known in early times among the Grecian people. By some it has been supposed much earlier known, or much earlier in known use among the Romans. That extraordinary structure, magnificent in its way, the Cloaca Maxima at Rome, has been attributed to Tarquinius Priscus; but Tarquinius Priscus, though a Roman king, was a Grecian man. A sewer, however, or a drain of some kind, in the bottom between the Palatine and Capitoline Hills at Rome, would, in almost the earliest age of the city, be obviously necessary towards any convenient union of those two hills in one town." The present sewer, however, bears evident marks of having been much more recently constructed than the time in question.

Till after the reign of Alexander, there are no authors who use the words ΘΟΛΟΣ,* ΑΨΙΣ,† and ΨΑΛΙΣ,‡ in a sense which can lead us to consider them as signifying an arch, nor is there any description extant in which we can trace the figure of an arch constructed on scientific principles. If its origin be Eastern, there is a strong probability that its appearance was not till after the age of Alexander. Dutens, an advocate for the early use of the arch among the Grecians, was long since answered by a noble lord of great classical acquirements, from whom, in the foregoing pages, it has been my misfortune sometimes to differ on subjects more immediately perhaps within my vocation. "During that time" (the age of Alexander), says that author, "the greatest change took place in the arts and sciences of Greece. They had arrived at a degree of improvement, which, though perhaps in some measure exaggerated, was certainly far beyond what former ages had witnessed. The use of the arch was probably communicated to the Romans by the Greeks, at the time that they bestowed on their conquerors every other species of art and refined taste. In Sicily and Magna Grecia, it might have been introduced somewhat earlier."§

* ΘΟΛΟΣ. *οἶκος εἰς ὀξὺ ἀπολήγουσαν ἔχων τὴν στέγην κατασκευασμένος.* Hesych. in loco. See page 24.

† ΑΨΙΣ, *εἶς. τὰ κύκλα τῶν τροκῶν. αἱ περιφέρειαι ἢ καμαραι.* Hesych.

‡ ΨΑΛΙΣ. *τὸ ἄρμενον. καὶ καμάρα. καὶ ταχεῖα κίνησις.* Ibid.

§ Edinburgh Review, Jan. 1806. Review of Dutens' Work, "Recherches sur le Tems le plus reculé de l'Usage des Voutes." 4to. Lond. 1805, said to be written by Lord Aberdeen.

OBSERVATIONS ON THE PLATES TO THE GRECIAN ARCHITECTURE.

PLATE I.

PARTHENON AT ATHENS.

This Temple, of which the parts and profile are given in the plate, was erected in the age of Pericles. The architect was Ictinus, and the sculptor Callicrates. The plan of the temple is a parallelogram, about 228 feet by 100 feet, including the outer columns. It had eight columns in front and rear, and seventeen on each flank. As the general features of this extraordinary and beautiful edifice are well known, from its representation in Stuart's "Athens," it will be necessary to state here some few particulars only which have come to light since the publication of that work.

The ceiling of the Pronaos appears to have been supported by four columns; and it seems more than probable that the cell was surrounded by columns, inasmuch as the marks of some of them 2 feet 1 inch diameter are indicated on the pavement, and their distance 8 feet 4 inches from centre to centre. A fragment, moreover, of a polygonal shaft of 20 sides, and 2 feet 1 inch diameter, has been discovered among the rubbish. The shaft of each column of the portico is composed of twelve courses of stones, and the bed of each has two circles described upon it, the outer one 9 inches from the edge and the termination to the surface which bears a polish. Between the two circles the surface is level, but not polished. The inner circle is rough and a little sunk, probably for mortar. About the centre is a square hole, 3 inches deep, as well as a hole in the upper stone: into these wooden dowels were inserted. It is worthy of remark that the stones of the Frieze were put together with cramps of (I) this form.

The diameter of the columns is 6 feet 2·12 inches, according to Stuart, whose measures have been adopted, though it is much to be regretted that the detail of that author frequently disagrees with his totals. The measures on the plate are founded on the diameter of the column, taken at 6 feet 2·72 inches, which, divided by 60, gives 1·24532 inches = 1 minute.

PLATE II.

GREAT HEXASTYLE TEMPLE AT PÆSTUM.

The temple from which this example is selected is Peripteral-Hypæthral. Its length on the upper step 202 feet 7 inches, and its breadth 82 feet 2 inches. The age of this temple has not been ascertained with precision. There are fourteen columns on each flank. Their diameter is 6 feet 8·2 inches; consequently 1 minute = 1·3366 inches.

PLATE III.

TEMPLE OF APOLLO AND PORTICO OF PHILIP IN THE ISLAND OF DELOS: AND TEMPLE AT CORINTH.

In the Island of Delos, says Stuart, "are two examples of the Doric order, both excellent in their kind, one of which belongs to what I imagine to have been the Temple of Apollo; the other to the Portico of Philip. The latter, on account of the lightness of its proportions, differs from all the examples we have given, and is more suitable for common use." It was found impossible to make out the extent or plans of either of the above buildings. The shafts of the two columns of the Temple of Apollo are fluted at their upper and lower extremities, but the intermediate part is plain. The diameter is 3 feet 1·11 inch; a minute is therefore = ·6185 inch. The diameter of the columns of the Portico of Philip is 2 feet 11·5 inches; a minute, consequently, = ·5916 inch. Rather more than a third of the lower part of the shafts are polygonal, above which they are fluted in the ordinary way.

Stuart conjectures the Temple at Corinth to have been Peripteral Hexastyle. The columns have twenty flutings, which terminate under the listels of the capital, and are segments of circles. The guttæ are round, and detached from the architrave. The material, a rough, porous stone; the shafts of the columns are each of one block only, and the whole has been covered with stucco. The architraves are of one stone each, from centre to centre of columns. The drops under the triglyphs were all broken off, and could not, therefore, be measured. The columns are 5 feet 10 inches diameter; a minute, consequently, = 1·1666 inches.

PLATES IV AND V.

IONIC TEMPLE ON THE ILYSSUS.

This Temple stood on the southern bank of the Ilyssus. Its length, measured on the upper step, is 41 feet 7 inches, and its breadth 19 feet 6 inches. It was Amphiprostylos Tetrastyle. The Cymatium in the original is destroyed. Stuart conjectures the frieze was ornamented with bassi relievi. The echinus of the capital continues under the volutes, which are diagonal on the external angles and mitred on the internal angles, by the junction of two semi-volutes. The flutes are twenty-four in number. Diameter of the columns, 1 foot 9·4 inches; a minute, therefore, = ·3566 inch.

PLATES VI. VII. AND VIII.

TEMPLES OF MINERVA POLIAS, AND ERECTHEUS, ATHENS.

The reason for my adoption of these names, in accordance with Stuart, cannot be entered into here. I am inclined to think Stuart right, notwithstanding the passage in Pausanias, Attic. c. 26, quoted by Mr. Wilkins,* from whom I differ with considerable hesitation. The temples of Minerva Polias, Erectheus, and Pandrosus, which together compose one building, stand about 150 feet to the north of the Parthenon. That towards the west was the Temple of Minerva Polias; that towards the east the Temple of Erectheus; and that on the south side was the Pandroseum, whose entablature and roof were supported by caryatides.

The first-named has a tetrastyle portico projecting two intercolumniations; its dimensions are about 33 feet 6 inches by 17 feet 6 inches. Diameter of the columns, 2 feet 9·4 inches; so that a minute = ·5572 inch.

The Erectheum has an hexastyle portico, projecting only one intercolumniation; it extends in front about 37 feet. The diameter of the columns is 2 feet 3·8 inches; a minute, therefore, = ·4633 inch. The upper member of the cornice, in the profile of the Temple of Minerva Polias, is a restoration.

* Atheniensia, p. 142.

PLATE IX.

CHORAGIC MONUMENT OF LYSICRATES, COMMONLY CALLED THE LANTERN OF DEMOSTHENES.

This beautiful example, stands on the eastern end of the Acropolis of Athens. "It is composed of three distinct parts," says Stuart. "First, a quadrangular Basement; secondly, a circular Colonnade, the intercolumniations of which were entirely closed up; and thirdly, a Tholus or Cupola, with the ornament which is placed on it." The diameter of this building taken on the lower step is 10 feet 8 inches. The columns are 1 foot 1·2 inch diameter; a minute consequently = ·22 inch.

PLATE X.

TEMPLE OF JUPITER OLYMPIUS.

This is one of the most considerable remains of Athenian magnificence. It has been erroneously called by the name here given. Stuart considers the ruins rather the remains of a stoa or portico, than of either a palace, as some have supposed it, or of a temple. The external walls enclose a large quadrangular space of 376 feet by 252. In the middle of it are the remains of a gate or entrance. The whole extent of the front is ornamented with Corinthian columns and terminated at each extremity by a Pteroma, or projecting wall, faced with a Corinthian pilaster. The original number of the columns was eighteen. Four of them, fluted, were in the centre of the front on the upper step—carrying an Entablature and Pediment, and forming a Portico before the Gate. On each side were seven columns, not fluted, on pedestals level with the upper step of the Portico. The abacus of the capital in this Example has acute angles, similar to those of the Temple of Vesta at Rome. The lower part of the shafts of the fluted columns are cabled. Their diameter is 2 feet 11·3 inches; so that a minute = ·5883 inch.

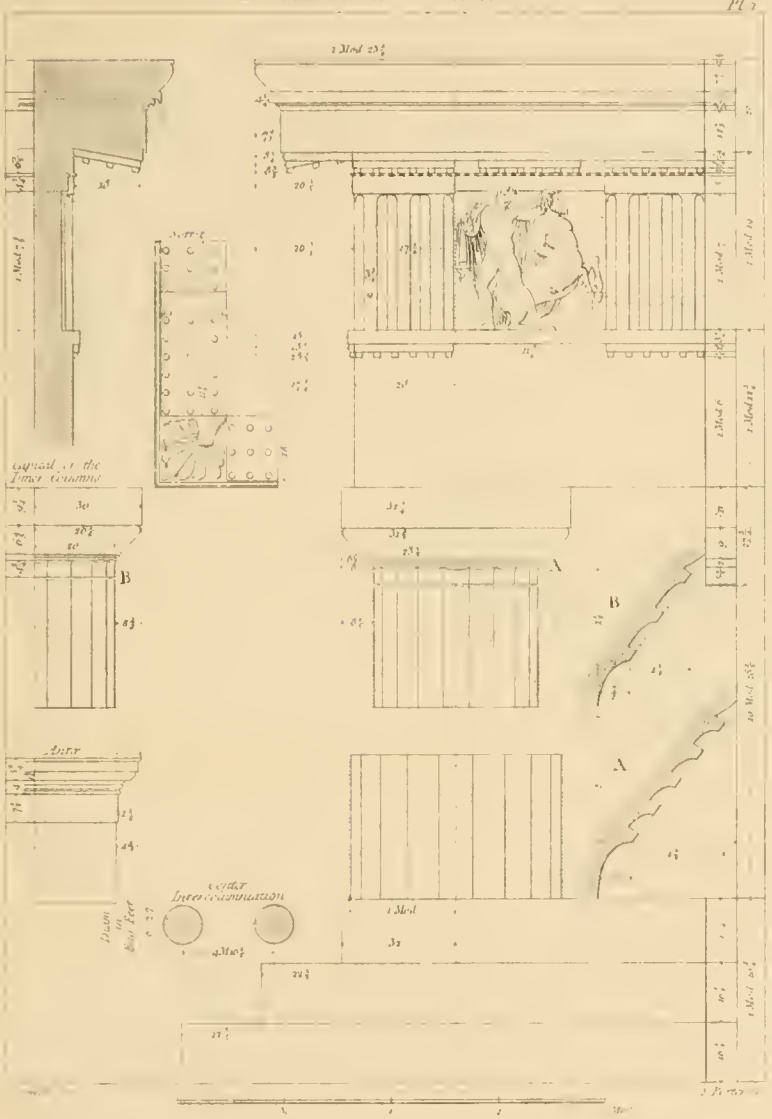
PLATE XI.

A Window from the Temple of Minerva Polias with the detail of the Mouldings in profile. Also two Examples of Caryatides, No. 1, from the Pandroseum. No. 2, from the Townley Collection.

GRECIAN ARCHITECTURE.

Parthenon Athens.

Pl. 1



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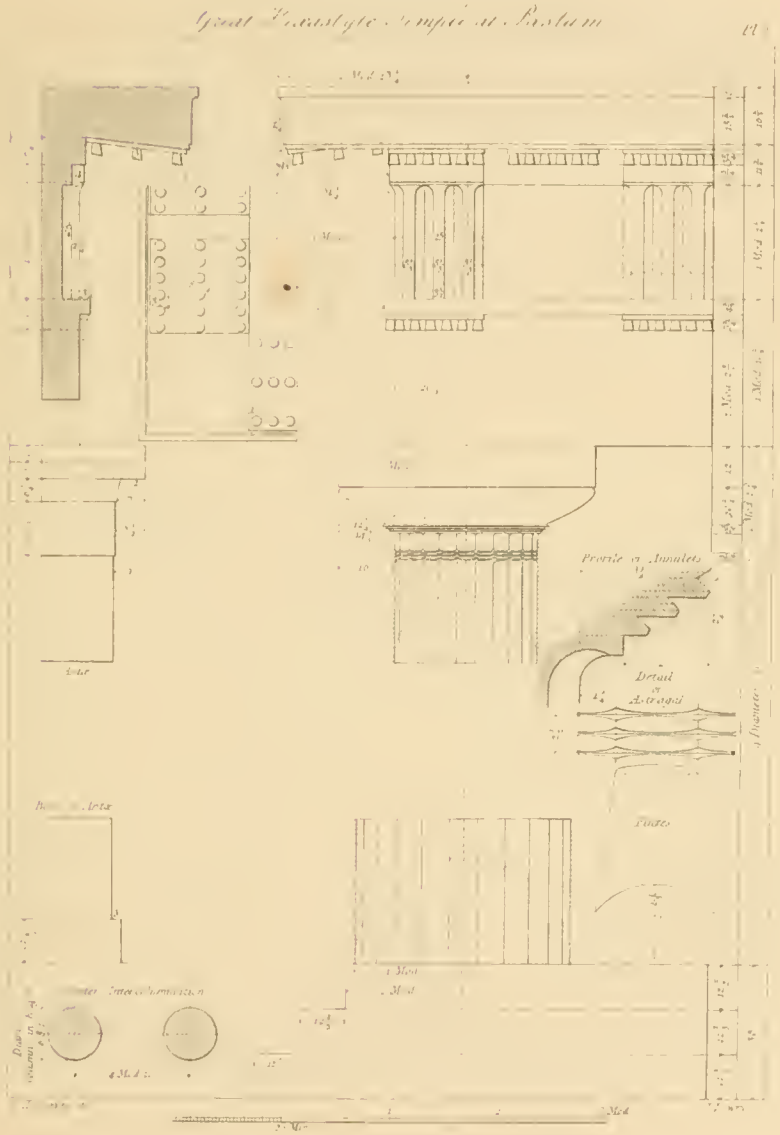
SIR WILLIAM CHAMBERS TREATISE.

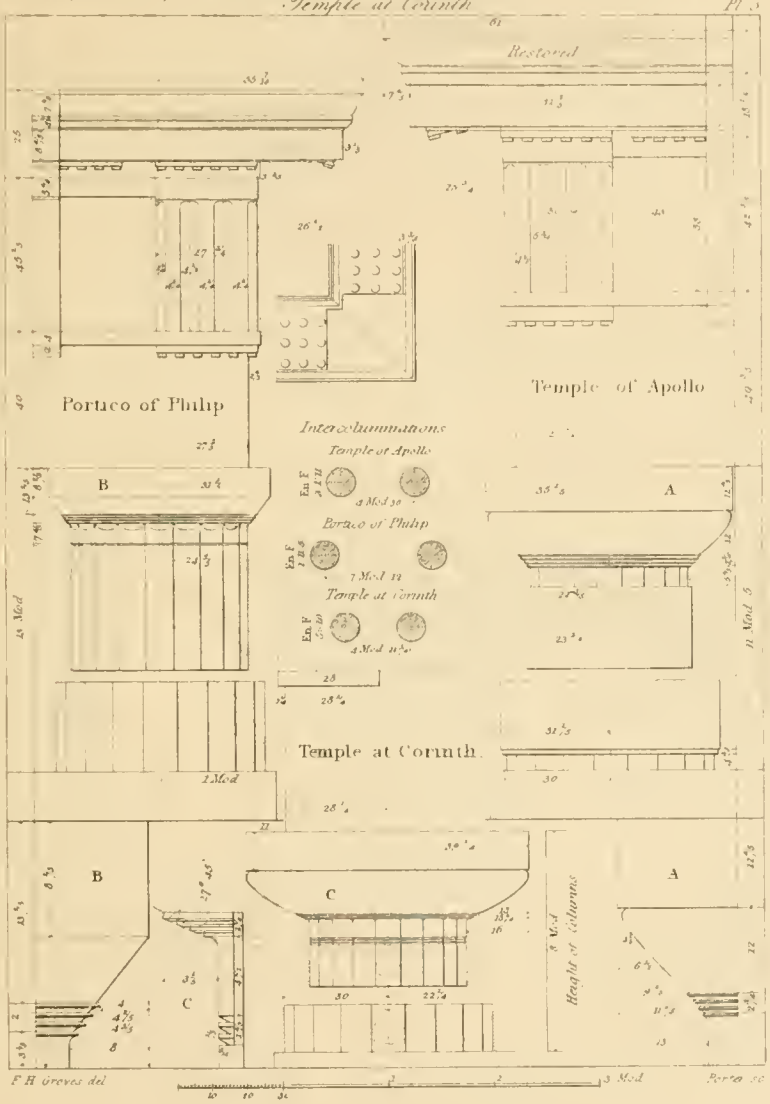
GRECIAN ARCHITECTURE

Great Façade of a Temple at Pæstum



Published by the Proprietors of the Building News 1858

Temple of Apollo Portico of Philip on the Island of Delos and Temple at Corinth



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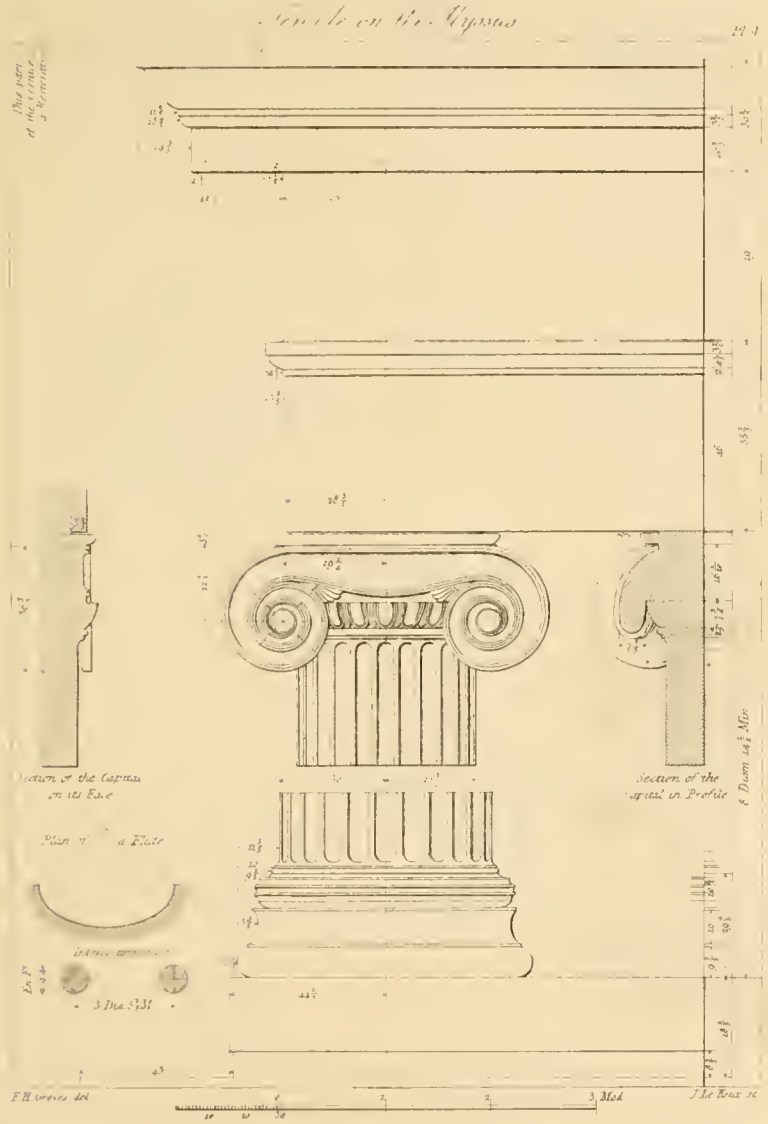
GRECIAN ARCHITECTURE

Temple on the Ilyssus



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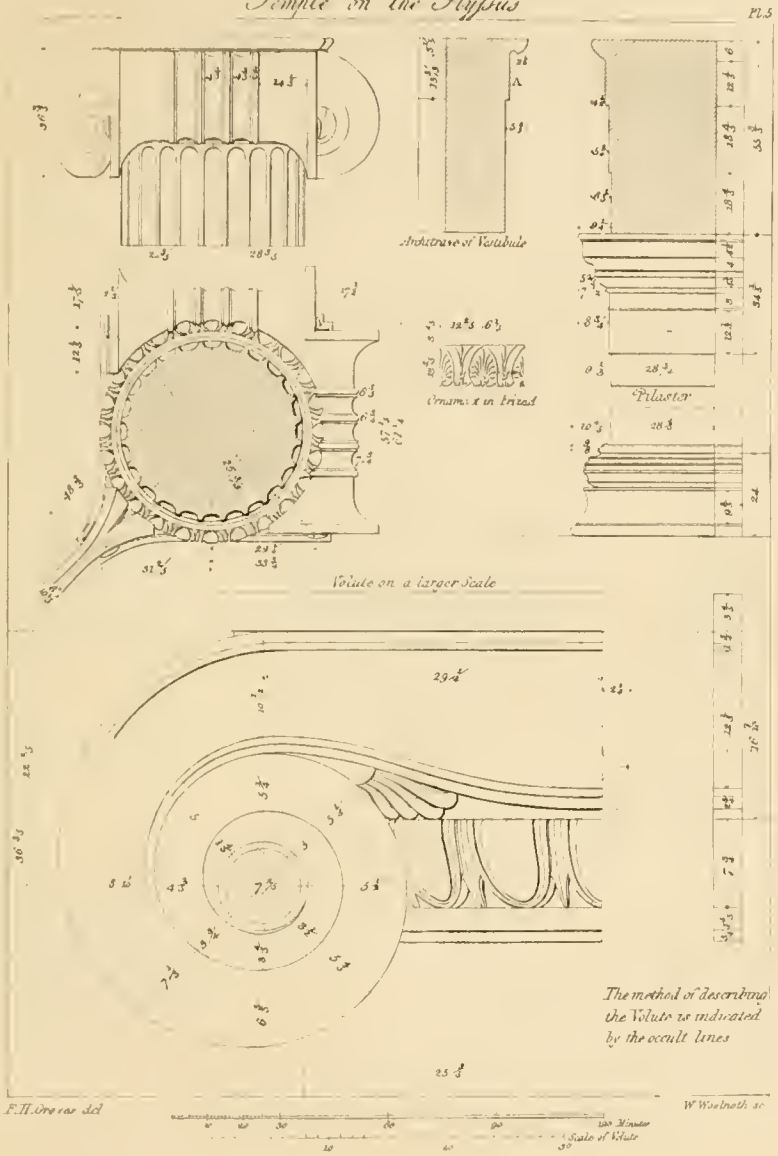
GRECIAN ARCHITECTURE.

Temple on the Ilyssus

Pl. 5


Architrave of Vestibule
Ornament in Entabl
Pilaster
Volute on a larger Scale
The method of describing the Volute is indicated by the occult lines
F.H. Orevar del
W. Woolnoth sc
Scale of Volute

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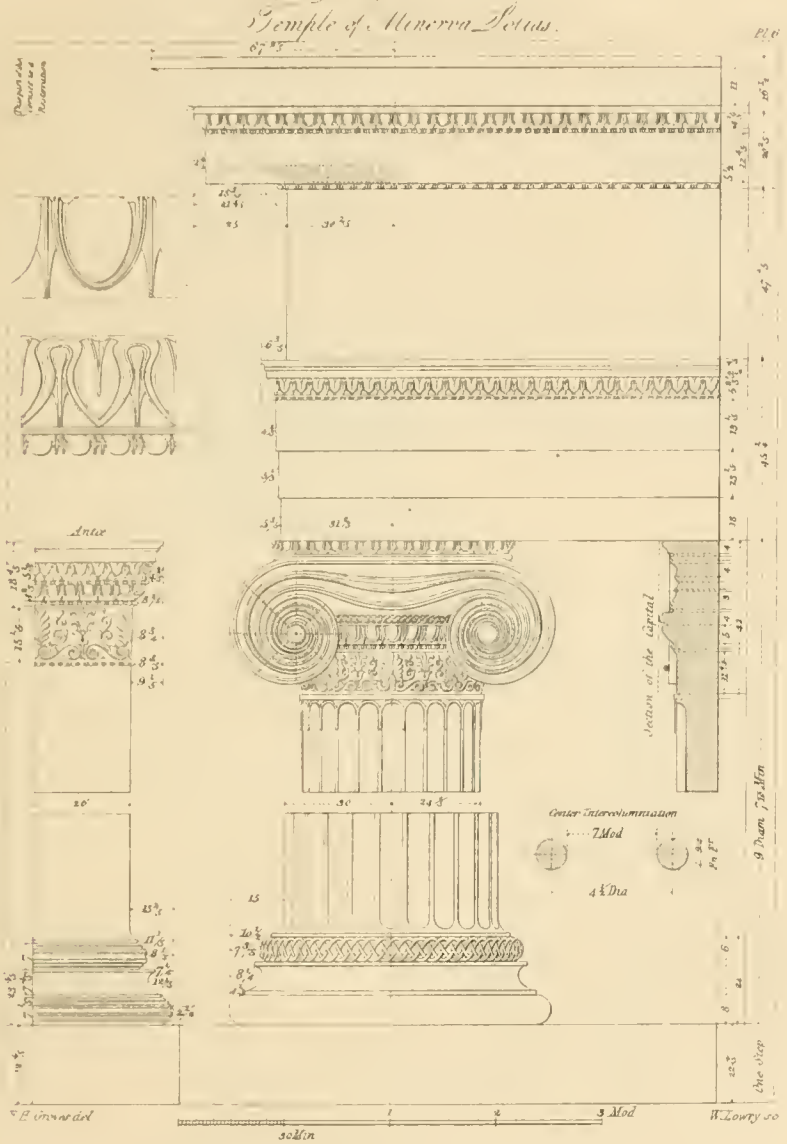
GRECIAN ARCHITECTURE

Temple of Minerva Polias.



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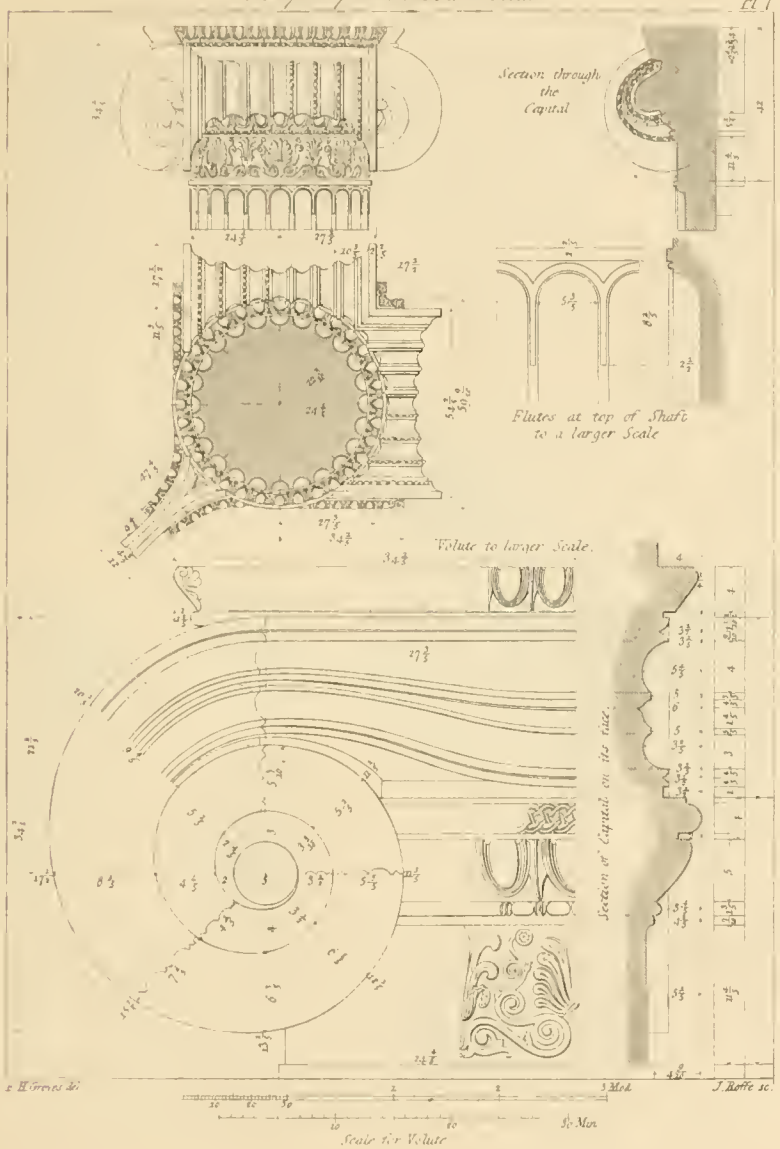
GRECIAN ARCHITECTURE.

Temple of Minerva Polias

Pl 7


Section through the Capital
Flutes at top of Shaft to a larger Scale
Volute to larger Scale.
Section of Capital on the line.
J. Roffe sc.
3 Mod.
Scale for Volute

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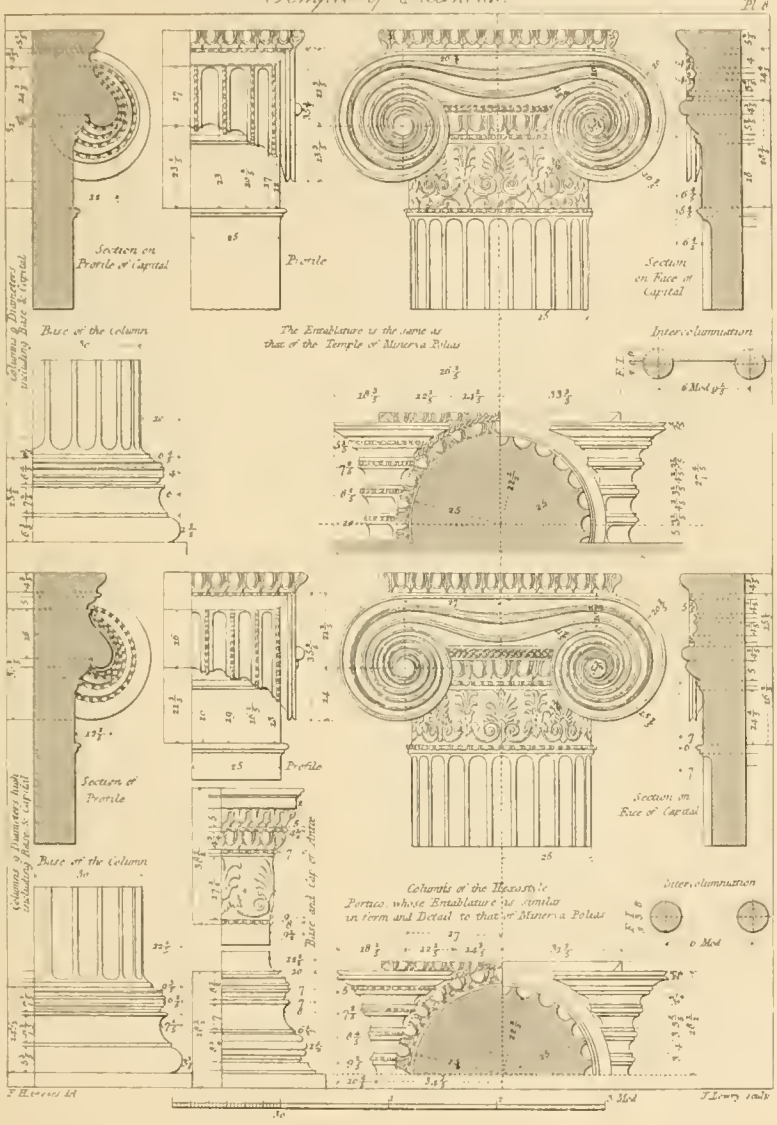
GRECIAN ARCHITECTURE.

Temple of Erechtheus.

Pl. 8


Section on Profile of Capital
Profile
Section on Face of Capital
Base of the Column
The Entablature is the same as that of the Temple of Minerva Polias
Inter-columniation
Columns of Diameters both including Base & Capital
Section of Profile
Profile
Section on Face of Capital
Base of the Column
Base and Cap of Astere
Columns of the Hexastyle Portico, whose Entablature is similar in form and Detail to that of Minerva Polias
Inter-columniation
F. Heravers del.
J. Lowry sculp.

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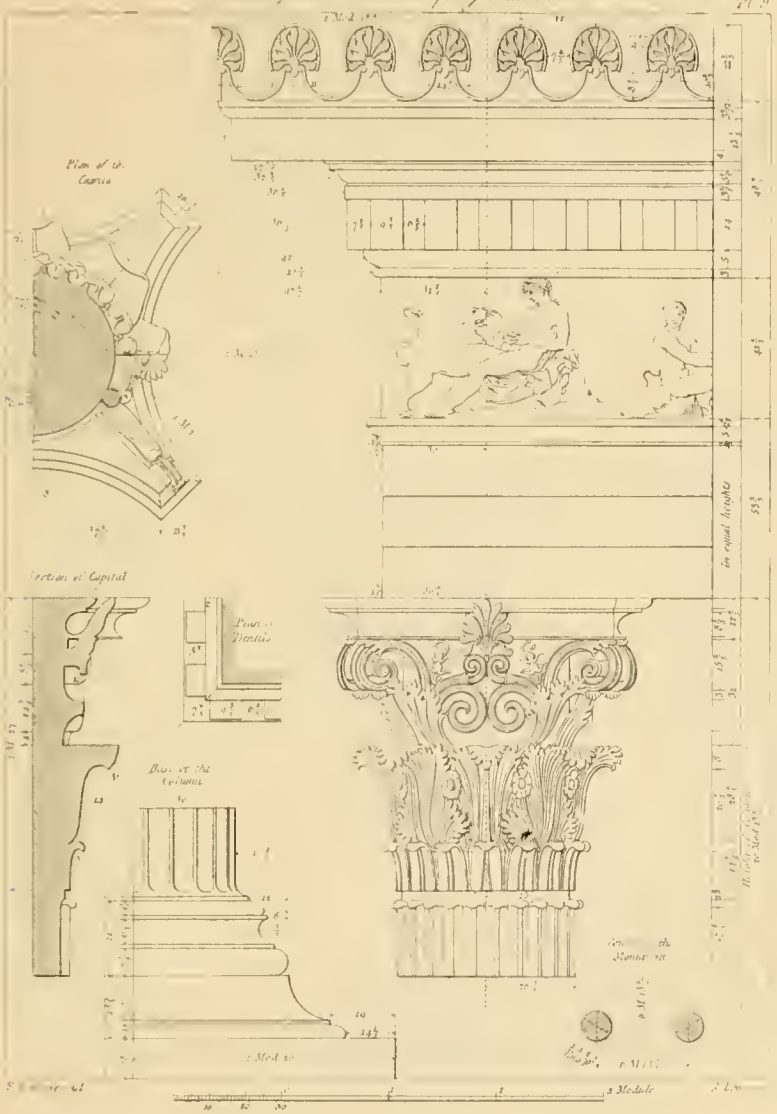
GRECIAN ARCHITECTURE

Vestage Monument of Lysicrates.



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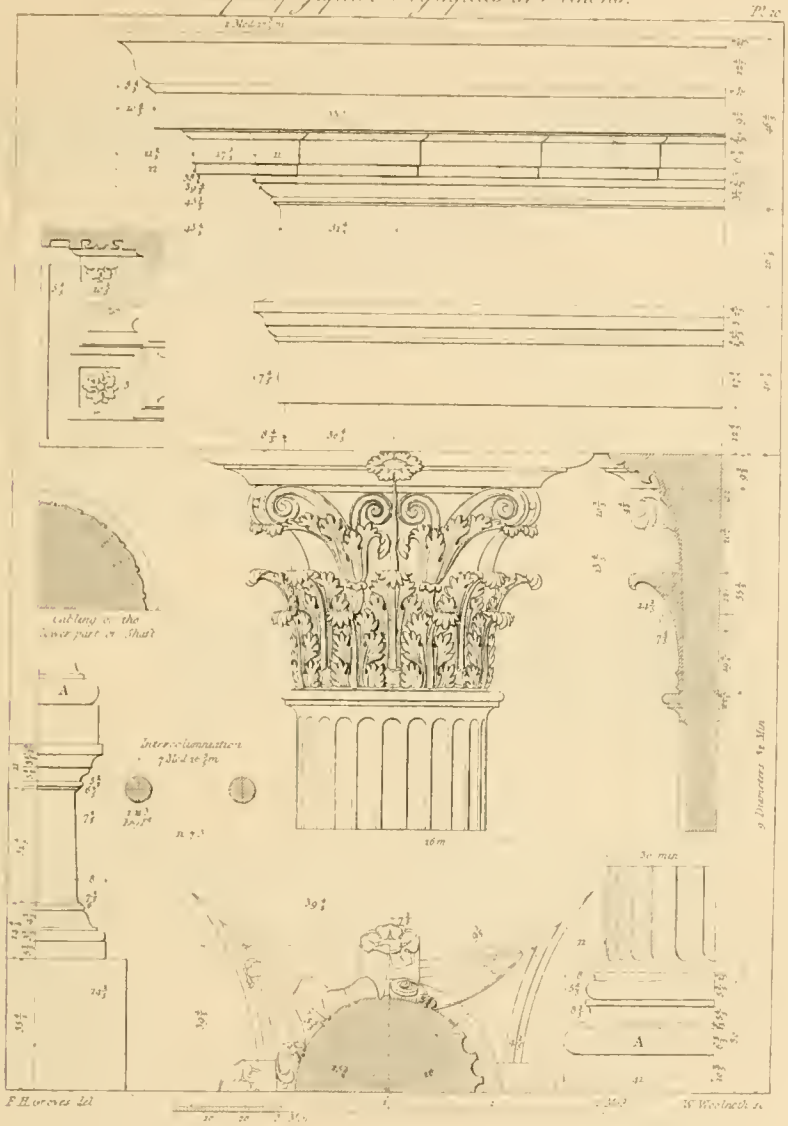
GRECIAN ARCHITECTURE

Temple of Jupiter Olympius at Athens.



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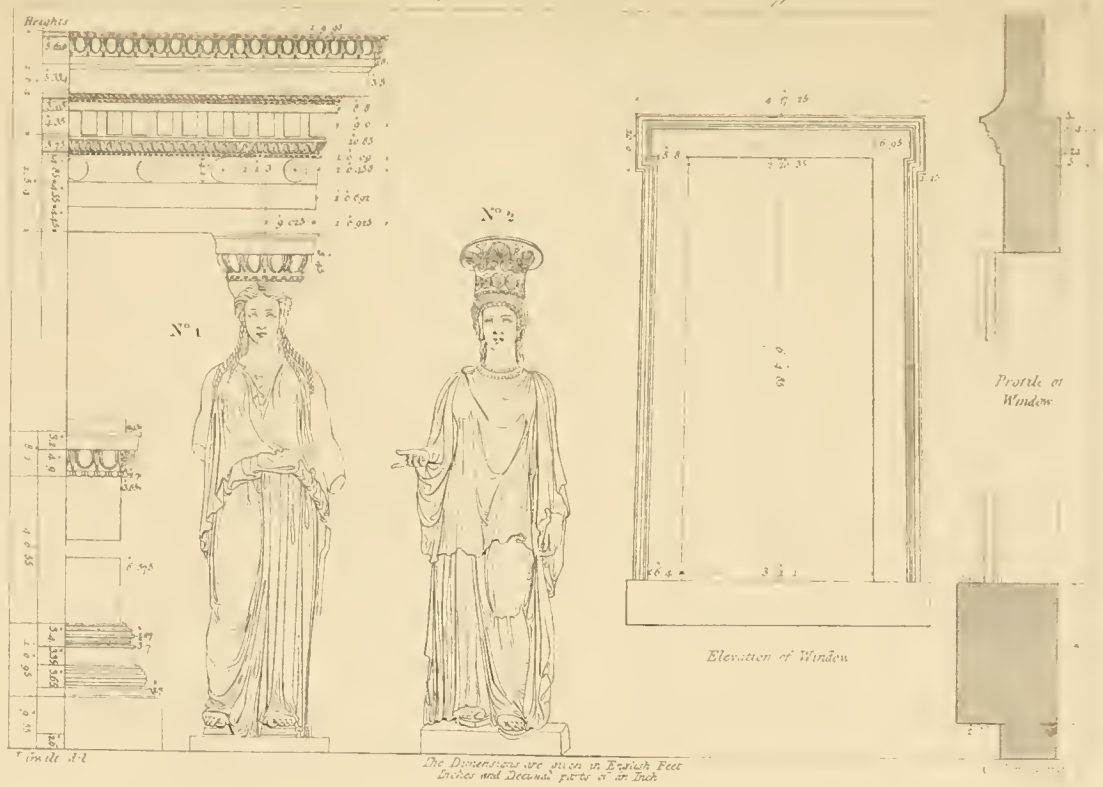
GRECIAN ARCHITECTURE

Window from Temple of Minerva Polias and Caryatides


Heights
N° 1
N° 2
Elevation of Window
Profile of Window
The Dimensions are given in English Feet Inches and Decimal parts of an Inch

Published by the Proprietors of the Building News, 1860

SIR WILLIAM CHAMBERS TREATISE.

Printed from Stone by F. Bethune & Son, London

TO

THE KING.*

Sir,

The present publication treats of an Art, often the amusement of Your Majesty's leisure moments; and which, in all ages, great princes have delighted to encourage: as one, amongst those most useful to their subjects, best calculated to display the power and splendour of their government; fittest to convey to posterity the munificence, skill and elegance of the times in which they flourished; the memorable events and glorious deeds in which they were engaged.

The indulgent reception afforded to the two former editions of this work, induced me not only to enlarge, and attempt improvements, in this third Edition, but likewise to solicit the honor of its appearance under the auspices of Your Majesty's patronage; and the condescension with which that mark of royal approbation was granted proves Your Majesty's desire to promote even the smallest advances towards perfecting the Arts of Design.

The institution of a Royal Academy; an Exhibition, become splendid under Royal Patronage; English Productions of Art, contending for pre-eminence with those of the first Schools on the Continent; are events, unexpected, as unhoped for, till Your Majesty's Accession.

For the benefits derived from these events, Artists of all degrees look up with reverence to the Throne; and so powerful is the example, such the influence of Royal Patronage, that the same spirit of encouragement has

* This dedication was to His late revered Majesty George III., and was prefixed to the Third Edition.

rapidly been diffused through all classes of Your Majesty's subjects; even men of inferior rank now aspire to taste in the Fine Arts; and by a liberality of sentiment formerly unknown, excite the artists to emulate and excel each other: circumstances not only much to their own honor, but contributing greatly to augment the splendour of the nation, to improve its taste, and stamp additional value on its manufactures, to extend its commerce, and increase the profits arising therefrom.

That Your Majesty may long reign over happy nations, and continue with equal ardour a Patronage which already has produced such beneficial effects, is the earnest wish of

Your Majesty's

Most dutiful Subject,

And ever faithful Servant,

WILLIAM CHAMBERS.

PREFACE.

Amongst the various arts cultivated in society, some are useful only, being adapted to supply our natural wants, or assist our natural infirmities; others again are instruments of luxury merely, and calculated to flatter the pride or gratify the desires of man; whilst others there are, contrived to answer many purposes, tending at once to preserve, to secure, to accommodate, delight, and give consequence to the human species.

Architecture, the subject of our present enquiry, is of this latter kind; and when viewed in its full extent, may truly be said to have a very considerable part in almost every comfort or luxury of life. The advantages derived from houses only, are great, they being the first steps towards civilization, and having certainly great influence both on the body and mind. Secluded from each other, inhabitants of woods, of caves, or wretched huts; exposed to the inclement vicissitudes of seasons, and the distressing uncertainty of weather, men are generally indolent, dull, and abject, with faculties benumbed, and views limited to the gratification of their most pressing necessities; but wherever societies are formed, and commodious dwellings are found, in which, well sheltered, they may breathe a temperate air, amid the summer's heat or winter's cold; sleep, when nature calls, at ease and in security; study unmolested; converse, and taste the sweets of social enjoyments; there they are spirited, active, ingenious and enterprising, vigorous in body, speculative in mind; agriculture and arts improve, they flourish among them; the necessaries, the conveniences, and soon even the luxuries of life, become there abundant.

Mere strength, however, even the steadiest perseverance, obtains with difficulty the desired produce; but inventions facilitate and shorten labour, multiplying productions, so as not only to supply domestic wants, but likewise to treasure up stores for foreign markets.*

* The author in the Third Edition has much obscured his meaning. In the Second Edition the passage is much clearer—"Invention facilitates labour; and what mere strength and perseverance obtains

Architecture, then, smooths the way for commerce; she forms commodious roads through marshes or other grounds naturally impracticable; fills up valleys, unites or levels mountains; throws bridges over deep or rapid waters; turns aside or deadens the fury of torrents; constructs canals of navigation, builds ships, and contrives ports for their secure reception in the hour of danger; facilitating thus the intercourse of nations, [by] the conveyance of merchandise from people to people.

A well regulated commerce is ever the source of wealth; and luxury has ever been attendant on riches. As the powers of gratification increase, fancy multiplies wants, till at length, indolence or pleasure, vanity and superstition, fears and resentments, give birth to a thousand superfluous, a thousand artificial cravings, the greater part of which could not be gratified without the assistance of architecture; for splendid palaces, magnificent temples, costly dwelling-houses, amphitheatres, theatres, baths and porticos, triumphal arches and bridges, mausoleums, and an endless number of similar inventions, are all either necessary instruments of ease and pleasure, or striking testimonies of wealth, of grandeur and pre-eminence, either present or past.

Nor are there any other objects, whether necessary or superfluous, so certainly productive of their design, so permanent in their effects, or beneficial in their consequences; fine furniture, rich dresses, brilliant equipages, numerous domestics, are only secondary attractions at first; they soon feel the effect of time, and their value fluctuates, or dies, with the fashion of the day, while the productions of architecture command general attention, are monuments lasting beyond the reach of modes, and record to latest posterity the consequence, virtues, achievements, and munificence of those they commemorate.*

The immediate and most obvious advantages of building are, employing many ingenious artificers, many industrious workmen and labourers of various kinds; converting materials of little value into the most stately productions of human skill, beautifying the face of countries, multiplying the conveniencies and comforts of life.

But these, however great, are not the most considerable; that numerous train of arts and manufactures, contrived to furnish and adorn the works of

with difficulty, ingenious contrivances produce with ease, and in abundance. Hence domestic wants are constantly supplied, and stores supplied for foreign markets." It appears probable that the author neglected to correct the press with his usual diligence and care in this passage, and that the words "produce" and "productions" might not inconveniently change places.—[Ed.]

* Mores tuos fabricæ loquuntur, quia nemo in illis diligens agnoscitur, nisi qui et in suis sensibus ornatissimus reperitur. Cassiodorus, lib. iv.—[Ed.]

architecture, which occupies thousands, and constitutes many lucrative branches of commerce; that certain concourse of strangers to every country celebrated for stately structures, who extend your fame, adopt your fashions, give reputation, and create a demand for your productions, are considerations of the highest consequence; in short, the advantages of building extend to the remotest ages, and at this day, the ruins of Ancient Rome in a great measure support the splendour of the present, by the number of travellers who flock from all nations to visit the ancient remains and modern magnificence of that famous city, and who, in the course of a few centuries, have there expended incredible sums of money by long residence, and in the purchase of old pictures, antique statues, busts, bas-reliefs, urns, and other curious productions of art, of which, by some extraordinary good management, there is a treasure never to be exhausted; the waste of four hundred years is scarcely perceivable.

Nor is architecture less useful in defending, than prosperous in adorning and enriching countries; she guards their coasts with ships of war, secures their boundaries, fortifies their cities, and by a variety of artful constructions controls the ambition and frustrates the attempts of foreign powers; curbs the insolence and averts the danger, the horror of internal commotions.

Thus architecture, by supplying men with commodious habitations, procures that health of body and vigour of mind which facilitate the invention of arts, and when by the exertion of their skill or industry, productions multiply beyond domestic wants, she furnishes the means of transporting them to other markets; and whenever by commerce they acquire wealth, she points the way to employ their riches rationally, nobly, benevolently, in methods honorable and useful to themselves and their descendants, which add splendour to the state and yield benefit both to their contemporaries and to posterity; she further teaches them to defend their possessions; to secure their liberty and lives from the attempts of lawless violence or unrestrained ambition.

An art so variously conducive to the happiness of man, to the wealth, lustre, and safety of nations, naturally commands protection and encouragement; in effect, it appears that in all civilised times, and well regulated governments, it has been much attended to, and promoted with unremitting assiduity, and the perfectioning of other arts has ever been a certain consequence, for where building is encouraged, painting, sculpture, and all the inferior branches of decorative workmanship, must flourish of course; and these have an influence on manufactures, even to the minutest mechanic productions; for design is of universal benefit, and stamps additional value on the most trifling performances,

the importance of which, to a commercial people, is obvious; it requires no illustration.*

Let it not, however, be imagined that building, merely considered as heaping stone upon stone, can be of great consequence, or reflect honor either on nations or individuals; materials in architecture are like words in phraseology, having separately but little power, and they may be so arranged as to excite ridicule, disgust, or even contempt, yet when combined with skill, expressed with energy, they actuate the mind with unbounded sway. An able writer can move even in rustic language, and the masterly dispositions of a skilful artist will dignify the meanest materials, while the weak efforts of the ignorant render the most costly enrichments despicable.† To such, the compliment of Apelles may justly be applied, who, on seeing the picture of a Venus magnificently attired, said to the operator, "Friend, though thou hast not been able to make her fair, thou hast certainly made her fine."

Hitherto architecture has been considered in a general light, under its different divisions of naval, military, and civil. I purpose, however, in the present work, to confine myself to the last of these branches, as being of more general use, and that to which my own study and practice have been more immediately directed.

It is not to be supposed that so difficult an art as architecture, after having lain many centuries absorbed in the general cloud of barbarism, should at once emerge in full perfection, or that the first restorers of the ancient manner of building could at once bring it to a degree of purity, incapable of further improvement. With very little assistance from books upon the subject, and that often obscure, unintelligible, or erroneous, while they were labouring to separate beauty from deformity, endeavouring to restore to light what length of time, casualties, war and violence had been active to deface—to annihilate—we must neither censure with severity their omissions,

* The influence of the arts of design, if evidence were necessary to corroborate the author's assertion, is sufficiently manifest, for example, in one branch of our manufactures, that of Pottery. Let the fictile vessels in use a century back be compared in respect of form with those of the present day. The comparison is calculated to surprise and astonish us.—[Ed.]

† Some of Palladio's finest examples are of brick. The cortile of the Caritá at Venice is an instance. The Interiors of the Redentore and St. Giorgio, in the same city, have but a coat of plaster on them. The beautiful Palazzo Thiene at Vicenza, at least that part which was executed, is left with its rockworked basement in brickwork chipped out.—Form alone fastens on the mind in works of art. The rest is meretricious if used as a substitute to supersede this grand desideratum. Laugier says, "Les Proportions sont si essentielles en Architecture, qu'un Batiment bien proportionné, n'eût il d'ailleurs d'autre merite que le bel appareil des Materiaux, fera toujours de l'effet, tandis que l'ornement prodigue à un edifice sans proportions ne sçauroit reussir."—Observations sur l'Architecture. La Haye, 1765.—[Ed.]

nor wonder at their mistakes, yet with all due reverence for the memory of those illustrious artists, it may be remarked that they left much undone and taught many errors. Their measures and designs were, generally speaking, incorrect, their plates ill engraved,* and the want of method, and of precision in treating their subject, renders the study of it in their works exceedingly discouraging.

It is indeed true that later writers have in a great measure supplied their omissions and rectified their faults. Few subjects have been more amply treated of than architecture, nor any by persons better qualified; insomuch that little remains either to be discovered or improved, every branch of the art having been maturely considered and brought very near the utmost degree of certainty of which it is capable.

Yet one thing of great use remained to be done—at least in our language†—which was, to collect in one volume what lay dispersed in many

* On Wooden Blocks, as in the works of Serlio. The plates, however, to the different editions of Daniel Barbaro's Vitruvius do not deserve this character. They are accurately and tastefully executed, and may vie with any productions of the present day. [Ed.]

† The following is a list of the chief works on Architecture in our own language, previous to the time of this third Edition:—

Aldrich, H., Elements of Civil Arch. 8vo. 1789, Oxford.

Builder's Dictionary. 2 vols. 8vo. London, 1734.

City and Countrey Purchaser and Builder's Dictionary, or the Compleat Builder's Guide, by T. N. Philomath. 8vo. Lond. 1703.

——————— Second Edition, by Richard Neve. 8vo. Lond. 1726.

Freart, Roland sieur de Chambray, Parallel of the antient Architecture with the Modern. Translated by Evelyn. fol. Lond. 1733.

Gerbier, Sir Balthazar's, Counsel and Advice to all Builders, for the Choice of their Surveyors, Clerks of their Works, Bricklayers, Masons, Carpenters, and other Workmen therein concerned. 18mo. Lond. 1663.

——————— Second Edition. 18mo. Lond. 1664.

Gwyn's, J., Essay on Design. 8vo. Lond. 1749.

——————— Qualifications of a Surveyor. 8vo. Lond. 1752.

——————— Essay upon Harmony as it relates chiefly to Situation and Building.

Le Clerc's, Sebast., Treatise of Architecture. 2 vols. 8vo. Translated by Chambers. Lond. 1732. Another edition, 1733.

Morris's Lectures on Architecture. 8vo. Lond. 1734.

Nutshell's (ΟΙΚΙΑΙΑ) being Ichnographic Distributions for Small Villas, &c. by Jose Mac Packe (James Peacocke). 8vo. Lond. 1785.

Palladio's First Book of Architecture, translated by Godfrey Richards. 4to. Lond. 1663.

——————— Architecture, by Giac. Leoni, with Notes and Remarks by Inigo Jones. fol. Lond. 1742. (There is another edition of this Book, which purports, by the title-page, to contain the Notes of Inigo Jones, but they are nevertheless omitted.)

———————, by Ware. fol. Lond. *sine an.*

Price's British Carpenter. 4to. Lond. (4th edit.) 1759.

Ware's, I., Complete Body of Architecture. fol. Lond. 1756.

hundreds, much the greater part of them written in foreign languages; and to select from mountains of promiscuous materials a series of sound precepts and perfect designs.

Whoever has applied to the study of architecture will readily grant that there are few pursuits more perplexing: the vague foundation on which the more refined parts of the art are built has given rise to such a multiplicity of jarring opinions, all supported by at least plausible arguments, that it is exceedingly difficult to discriminate or distinguish what is real from that which is merely specious; the connexions which constitute truth or fallacy being often far distant, beyond the sight of superficial observers. Whence, the merit of performances is too often measured by the fame of the performer, by the taste of the age in which they were produced, by vulgar report, party opinion, or some other standard equally inadequate, and not seldom by precepts delivered some centuries ago, calculated for other climates, other men, and other customs.

To obviate these inconveniences the author ventured, soon after his return from Italy, upwards of thirty years ago, to attempt such a compilation as is above mentioned, by a publication of the first edition of the present work. He flattered himself that, if well conducted, it would greatly shorten the labours of the student, and lead him to truth by easy and more inviting paths; that it might render the study of architecture and its attendant arts more frequent, serve to promote true taste, and to diffuse the love of *Virtù* among persons of high rank and large fortune,—the fit encouragers of elegance.

His design was, without bias from national or other prejudices, candidly to consider what had been produced upon the subject, and to collect from the works or writings of others, or from his own observations, in all parts of Europe famed for taste, such particulars as seemed most interesting or properest to give a just idea of so very useful and truly noble an art.

Sensible that all ages had produced bad or indifferent artists, and that all men, however excellent, must sometimes have erred, it was his intention neither to be influenced by particular times nor by the general reputation of particular persons. Where reason or demonstration could be used he purposed to employ them, and where they could not, to substitute in their places generally admitted opinions. Abstruse or fruitless arguments he wished carefully to avoid, nor was it his intention to perplex the unskilful with a

Wotton's, Sir Henry, Elements of Architecture. 4to. Lond. 1624.

Wilsford's, Thomas, Art of Building, or an Introduction to all Young Surveyors in Common Structures. 8vo. Lond. 1659.—[Ed.]

number of indiscriminate examples, having judged it much more eligible to offer a few calculated to serve at once as standards for imitation or guides to judge by in similar productions. Precision, perspicuity, and brevity were to be attempted in the style, and in the designs, simplicity, order, character, and beauty of form.

The difficulty and extent of such a task, undertaken early in life, rendered success very uncertain, and filled the writer's mind with many apprehensions; but the indulgent encouragement, so liberally extended to the two former publications of this work, and the frequent calls for a third, are pleasing testimonies that his endeavours have not been wholly in vain. He ventures to consider the sale of two numerous editions written upon a subject rather instructive than entertaining, and in a language generally unknown to foreign artists, as a proof of the utility of his undertaking, at least in the country where he most wished to have it useful. And stimulated by a desire of rendering it still more deserving public notice, he has carefully revised and considerably augmented this third edition,—he does not presume to say improved it,—but flatters himself the experience gained by thirty years' very extensive practice, since the original publication, has enabled him to judge with some degree of certainty at least of what might be left out, be added, or altered to advantage.

Amongst the additions to this third edition* there is an introductory discourse, designed to point out and briefly to explain the requisite qualifications and duty of an architect at this time; and in the course of the work many additional hints, explanations, and elucidations have been inserted, wherever they seemed either necessary for better understanding the text, for the further information of the reader, or for giving additional force and greater authority to what had been before advanced. It has furthermore been attempted on different occasions to point out to the student the course he ought to steer, the dangers he has to avoid, the object he must constantly keep in view.

To these additional articles in the text are added four entire new plates, one of chimney-pieces, the rest containing vases, urns and other ornamental pieces, designed by the author, and executed for their Majesties, his Grace the

* The title of the first as well as of the second edition is as follows:—"A Treatise on Civil Architecture, in which the Principles of that Art are laid down, and Illustrated by a great number of Plates, accurately designed and engraved by the best Hands," &c., &c. The first edition was published 1759, the second, 1768, the third, 1791, in which the title was changed (perhaps needlessly) by the author to that which is prefixed to the present edition.—[Ed.]

Duke of Marlborough, the Earl of Charlemont, and some other persons of high rank. Several of the old plates have also been altered, and it is hoped somewhat improved.

The favourable reception this Treatise on the ornamental part of architecture has experienced both in England and abroad, is such as certainly required a full discharge of the original engagement, by treating upon the art in its remaining branches. But such and so constant have been the writer's avocations, that in the course of thirty years it has never been in his power properly to set about so extensive an undertaking, and a variety of concurring circumstances, render it less so now than ever. Loose materials have, indeed, been abundantly collected, and many designs have from time to time been made with an eye to the general intention; but there are so many more to make, so much to correct and methodize, that he must, however reluctantly, relinquish the task, and consign the remainder to the execution of some future pen.

In the mean time from the method throughout observed in treating the present subject, it is presumed that this part may now be, as it has hitherto been, considered as a distinct work, in all respects unconnected with anything that might or may follow; which form was originally fixed upon for the advantage of the subscribers as well as for the security of the publisher; and has now been continued partly from necessity and in part for the benefit of purchasers, many of whom have little or no occasion to study any more of the art than what the present publication contains, the remaining branches, though very important to builders, being of little service to connoisseurs or men of taste, who aspire to be judges of the beauties or deformities of a structure, without caring much about the rest, or having the fatigue of entering into particulars either concerning its value, its disposition, or construction.

INTRODUCTION.

Civil Architecture is that branch of the builder's art which has for its objects all structures, either sacred or profane, calculated to supply the wants and comforts, or to promote, extend, and diversify the pleasures of life; either contrived to facilitate the business, give lustre to the duties, or display the state and distinctions of society. Its purpose is to erect edifices, in which strength and duration shall unite with beauty, convenience, and salubrity; to ascertain their value; and to build them with every attention to safety, ease, and economy.

Many and singularly opposite must be the qualities and attainments of him who aspires to excel in an art so variously directed. "Architecture," says Father Laugier,* "is of all useful arts that which requires the most distinguished talents. There is perhaps as much genius, good sense, and taste requisite to constitute a great architect, as to form a painter or poet of the first class. It would be a strange error to suppose it merely mechanical, and confined to digging foundations or building walls, by rules of which the practice supposes nothing more than eyes accustomed to judge of a perpendicular, and hands expert in the management of a trowel. In contemplating the builder's art, all that indeed strikes a vulgar imagination are, confused mounds of incommodious ruins, formless heaps of collected materials, dangerous scaffoldings, a frightful clatter of hammers, tools, and working machinery, an army of slovenly bespattered labourers and workmen; but these are only as it were the rough bark of an art, the ingenious mysteries of which, though only discoverable to few observers, excite the admiration of all who comprehend them. They perceive inventions of which the boldness implies a genius at once fertile and comprehensive, proportions of which the justness announces a severe and systematic precision, ornaments of which the excellence discovers exquisite and

* Introduction to "Essai sur l'Architecture." 8vo. Paris, 1755.

Laugier, Marc Antoine, was born in Provence, 1713; died, 1769. He quitted the order of Jesuits, of which he was early in life a member. His book, entitled "Observations sur l'Architecture," 12mo. La Haye, 1765, is worthy a place in every architectural library.—[Ed.]

delicate feeling; and whoever is qualified to taste so many real beauties will, I am certain, far from attempting to confound architecture with the inferior arts, be strongly inclined to rank it amongst those that are most exalted."

Vitruvius* requires that the architect should have both ingenuity and application, observing, that wit without labour, or labour without wit, never arrived at perfection. "He should," says he, "be a writer and draughtsman; understand geometry, optics, and arithmetic; be a good historian and philosopher; well skilled in music; and not ignorant in either physic, law, or astronomy. The same author further requires that he should be possessed of a great and enterprising mind; be equitable, trusty, and totally free from avarice, without which it would be impossible to discharge the duties of his station with due propriety. Ever disinterested, he should be less solicitous of acquiring riches than honour and fame by his profession."

And Pythius,† another ancient writer, cited by Vitruvius, insisted that an architect should be more expert in every profession connected with his art than the ablest professors of each art respectively.

To this, however, Vitruvius does not assent, observing, "that the human mind cannot arrive at perfection, in so many difficult and various parts of knowledge. It is," says he, "even rare in the course of a century to find a man superlatively excellent in any profession, why then is it expected that an architect should equal Apelles in painting, Myron and Polycletus in sculpture, Hippocrates in medicine, Aristoxenus in music, or Aristarchus in purity of language. Pythius should have remembered that every art consists of two parts, theory and practice; the latter of which appertains peculiarly to its professors, but the former is common to them and to the learned in general. If, therefore, an architect be sufficiently master in all the arts connected with his profession to judge perfectly of the merit of their productions, it is the most that should be insisted upon; and if so qualified he shall not need to blush at his own insufficiency."‡

In fact the business of an architect requires him rather to be a learned judge than a skilful operator; and when he knows how to direct and instruct others with precision, to examine, judge, and value their performances with masterly accuracy, he may truly be said to have acquired all that most men can acquire. There are but few instances of such prodigies as Michael Angelo

* Vitruvius, Lib. I. c. i.

† Pythius was the architect of a magnificent temple at Priene, dedicated to Minerva. Vitruv. Lib. I. c. i.—[Ed.]

‡ Vitruv. ibid.

Buonaroti, who was at once the first architect, painter, geometrician, anatomist, and sculptor of his time.

Vitruvius furthermore observes that an art enriched with such variety of knowledge is only to be learned by long and constant application, and advises his contemporaries never to assume the title of architects till they are perfect masters of their own profession and of the arts and sciences with which it is connected; a caution that even in the present times may perhaps not be unnecessary.

It will not readily occur why a man should be either historian or philosopher, musician or physician, lawyer or astronomer, before he ventures to commence architect. Our author, however, assigns his reasons, which, for the sake of brevity, are here omitted. The curious reader will find them in the original book, to which he is referred for further information.*

Some part of all this knowledge, though it might have been necessary to an artist of the Augustan age, is not absolutely so now; some part of it, too, seems rather ostentatiously introduced, more to enumerate the learned writer's own qualifications than such as were indispensably necessary to every man of his profession. The remaining part shall be mentioned in its place, while I venture to give an opinion concerning the requisite qualifications of an architect, differing in some particulars from those above given, but more adapted, I flatter myself, to the wants, customs, and modes of life of our cotemporaries, as well as to the duties and avocations of a modern architect.

Architecture being an active as well as a speculative art, in which exertions of the body, the organs of sense and of utterance are equally necessary with efforts of the mind; it naturally follows that such as intend to make it their profession, should enter the lists with a good stock of health, vigour, and agility; they should neither be lame nor unwieldy; neither awkward, slow, nor helpless; neither purblind nor deaf; nor have anything ridiculous about them, either natural or acquired. Their understanding should be sound; the sight and apprehension quick; the reasoning faculties clear, and unwarped by

* The author hardly takes the meaning of Vitruvius, who certainly intended to say no more, than that an architect should be a man of very general information, which it is presumed nobody will deny. Vitruvius, who inflated everything whereof he treated, has doubtless made a vast show on the subject, in his first chapter, but he has nevertheless greatly qualified the extent to which the different sciences are required to be carried. Thus towards the end of the first chapter, he says, speaking of the architect—"Ergo satis abunde is videtur fecisse, qui ex singulis doctrinis partes et rationes earum mediocriter habet notas, easque quæ necessariæ sunt ad architecturam, uti si quid de his rebus et artibus judicare et probare opus fuerit ne destituatur vel deficiat." Vitruv. Lib. I. c. i.—[Ed.]

prejudices; the temper enterprising, steady, resolute, and though benevolent, rather spirited than passive, meek, or effeminate.

The necessity of these qualities in one destined to direct and manage great works, to govern and control numerous bands of clerks, inspectors, artists, artificers, workmen, and labourers, must be sufficiently obvious. And as at the present time, few engage in any profession till qualified for the world by a proper school-education at least, it must be supposed that to a competent proficiency in the learned languages the student adds a thorough knowledge of his own, so as to speak and write it correctly at least, if not elegantly; that he is a good penman; versed in accounts; a ready practitioner in arithmetic; and has received and profited by such other instructions as tend to fix the moral character, to inculcate integrity, to polish the minds and improve the manners of youth.*

Proficiency in the French and Italian languages is also requisite to him, not only that he may be enabled to travel with advantage and converse without difficulty, in countries where the chief part of his knowledge is to be collected, but also to understand the many and almost only valuable books treating of his profession, the greater part of which have never been translated. And as among seamen there is a technical language, of which no admiral could be ignorant without appearing ridiculous, so in architecture and the professions connected therewith, there are peculiar modes of expression and terms of art of which an architect must by no means be ignorant, as that knowledge impresses upon the minds of the workmen a respectable idea of his abilities, consequently a deference for his opinions; and furthermore enables him to explain to them intelligibly what he intends or wishes to be performed.

To these qualifications, mental and corporeal, must be united genius, or a strong inclination and bias of mind towards the pursuit in question, without which little success can be expected. This quality, whether it be the gift of God† or a fortuitous propensity,‡ whether innate or acquired, has not unaptly

* If success were a proof of talent, one might be inclined to question the necessity of good education and learning in any profession. The most ignorant often blunder through and make the largest fortunes. Corinthian cheeks are ever the most valuable possession. As the apothecary ends his career in the capacity of physician, so the carpenter, bricklayer, mason, *et alii de grege*, usually rise up and finally revolve in an architectural orbit.—[Ed.]

† "The Lord hath called Bezaleel, and hath filled him with the spirit of God, in wisdom, in understanding, and in knowledge, and in all manner of workmanship, and to devise curious works.

"And he hath put it in his heart, that he may teach, both he and Aholiab, them hath he filled with wisdom of heart to work all manner of work."—Exodus, xxxv. 30—34.

‡ "In the window of his mother's apartment, lay Spenser's Fairy Queen, in which he very early took delight to read, till, by feeling the charms of verse, he became, as he relates, irrecoverably a poet. Such

been compared to those instincts implanted by nature in different animals, by which they are enabled to comprehend and to perform certain things with much ease, while others, not having the same natural disposition, neither comprehend nor can perform them. Thus the man of genius, or he whose mind is peculiarly adapted to the contemplation of his subject, comprehends with ease, distinguishes with perspicuity, treasures up with nice selection whatever is ingenious, extraordinary, useful, or elegant; his imagination, ever active in a favourable pursuit, will abound in ideas, combinations, and improvements, equally new, striking, and agreeable; while he who mistakes his way, and applies to studies for which nature or early impressions have not prepared him labours sluggishly, without relish as without effect; like Sisyphus, ever toiling up a hill, the summit of which he is never to reach.

As many sorts of knowledge, very opposite in their natures, come under the architect's consideration, his genius must be of a complex sort, endowed with the vivacity and powers of imagination requisite to produce sublime or extraordinary compositions, and at the same time with the industry, patience, and penetration necessary to investigate mathematical truths, discuss difficult sometimes irksome subjects, and enter into details of various sorts, often as tiresome as they are necessary; a genius equally capable of expanding to the noblest and most elevated conceptions, or of shrinking to the level of the meanest and minutest inquiries;—as Dr. Johnson expresses it, a mind that at once comprehends the vast and attends to the minute.

Dispositions of this nature are seldom found, their constituent qualities are in some degree incompatible, and hence, perhaps, chiefly arises the rarity of complete masters in the profession. The lively student naturally strikes into the paths which afford most scope for his fancy; he exercises himself in the arts of composition, and in the different branches of design; improves his knowledge of painting, sculpture, books, and structures; forms his taste, and turns his whole attention towards the sublimer parts of the art, neglecting all the while the inferior knowledge, so useful, so absolutely necessary in practice, and of which a perfect master can never be ignorant. Ambitious to excel, he must not neglect attainments without which he cannot operate, while they may be purchased at the expense of industry and steady perseverance.*

are the accidents, which sometimes remembered, and perhaps sometimes forgotten, produce that particular designation of mind and propensity for some certain science or employment, which is commonly called genius. The true genius is a mind of large general powers, accidentally determined to some peculiar direction. Sir Joshua Reynolds, the great painter of the present age, had the first fondness of his art excited by the perusal of Richardson's Treatise."—Dr. Johnson's Life of Cowley.

* The Architectural Student will do well to keep in mind what Sir Joshua Reynolds says on another

A celebrated Italian artist,* whose taste and luxuriance of fancy were unusually great, and the effect of whose compositions, on paper, has seldom been equalled, knew little of construction or calculation, yet less of the contrivance of habitable structures, or the modes of carrying real works into execution, though styling himself an architect. And when some pensioners of the French academy at Rome, in the author's hearing, charged him with ignorance of plans, he composed a very complicated one, since published in his work, which sufficiently proves that the charge was not altogether groundless.

art, and which is quite applicable in our own. "In this art, as in others, there are many teachers, who profess to show the nearest way to excellence; and many expedients have been invented by which the toil of study might be saved. But let no man be seduced to idleness by specious promises. EXCELLENCE IS NEVER GRANTED TO MAN, BUT AS THE REWARD OF LABOUR. It argues, indeed, no small strength of mind to persevere in habits of industry, without the pleasure of perceiving those advances, which, like the hand of a clock, whilst they make hourly approaches to their point, yet proceed so slowly as to escape observation."—Second Discourse on Painting.—[ED.]

* Giov. Battista Piranesi, the celebrated engraver, is here alluded to. He was a Venetian, and was born in 1720: his death happened in the year 1788. A list of his works may not be unacceptable, and is therefore subjoined:—

1. His earliest work—the dedication to which is dated 1748, though published in 1743—is entitled, "Antichità Romane de' Tempi della Repubblica e de' primi Imperatori." 2 parts. 28 plates. Roma, 1748.
2. Architetture varie. 27 plates. Roma, 1750.
3. Carceri d'Invenzione. 16 plates. No date, but supposed 1750.
4. Trofei d'Augusto, &c. 10 plates. Roma, 1753.
5. Archi trionfali, Tempj ed Anfiteatri. 31 plates. Roma, circà 1753.
6. Antichità Romane. This embraces the fragments of the ancient plan of Rome in the Museum of the Capitol. 224 plates. 4 vols. Roma, 1756. To these there is a Supplement by the son, F. Piranesi. 2 vols. 1785.
7. Rovine del Castello dell'acqua Giulia. 20 plates. Roma, 1761.
8. Antichità d'Albano e di Castel Gandolfo. 55 plates. Roma, 1761-2.
9. De Romanorum magnificentiâ et Architecturâ. 44 plates. Romæ, 1761.
10. Campus Martius antiquæ urbis. 54 plates. Romæ, 1762.
11. Lapides Capitolini sive Fasti Consulares. 12 plates. Romæ, 1762. With this usually occurs the Antichità di Cora, 14 plates.
12. Diverse maniere d'adornare i Cammini. 69 plates. Roma, 1769.
13. Colonna Trajana. Large folio. 21 plates. Roma, 1770.
14. Vasi, Candelabri, &c. 114 plates. Roma, 1778.
15. Vedute di Roma, about 137 plates. Besides these, there is also a small work of this author, now very scarce, in which, extremely irritated against Lord Charlemont, he assigns his reasons for not dedicating to him his Antichità Romane. For this work he etched, in quarto, exact copies of the four original frontispieces which were to have immortalised the name of his patron, with views of the inscriptions re-engraved as they now stand, as though the first inscriptions had been cut out of the stones, and the new ones inserted on small pieces let into them. There are also head and tail pieces alluding to the matters and persons involved in the dispute. This work is dated 1757. A representation of Lord Charlemont's (the nobleman above mentioned) casino will be found among Sir W. C.'s plates.—[ED.]

Indeed it is not unfrequent in some countries of the continent to find ingenious composers and able draughtsmen with no other reading than Vignola's rules, and without any skill whatever in the executive parts, or knowledge of the sciences belonging thereto.

On the other hand, the student of a more saturnine cast, unable or fearful, perhaps, of soaring so high, applies his powers to the operative and economical branches of the art, resting satisfied in the parts of design and composition to imitate or copy others, content, if by borrowing whatever falls in his way, he avoids any striking absurdities, and reaches that state of mediocrity which, though it may escape censure, commands no praise.

In countries where mechanics assume the profession, and arrogate the title of architects, men of this sort abound; they are, by foreigners, styled portfolio artists, and their productions, collected without judgment from different stores, must ever be discordant—without determined style, marked character, or forcible effect, always without novelty, and having seldom either grandeur or beauty to recommend them. They are pasticcios in building, generally more imperfect than those of the stage.

But though genius be the basis of excellence, alone it can produce but little: the richest soil, when neglected, affords no other crop than weeds, and from the happiest disposition, without culture, without knowledge of rules to guide, or judgment to restrain, little more can be expected than capricious conceits or luxuriant extravagancies.

Of mathematical knowledge, geometry, trigonometry, and conic sections should be understood, as teaching the construction, properties, contents, and divisions of the forms used in building. Likewise mechanics and hydraulics, which treat of the formation, and ascertain the effects of all kinds of machinery, simple or complex, used in building; likewise of the raising, conveyance, and application of water, as well for the common uses of life as to produce many extraordinary effects, very ornamental in gardening, and efficacious in manufactures.*

These sciences furthermore treat of the gravitation of bodies, and in what

* Mathematics have, perhaps, been too much neglected by some of the Architects of this country. The consequence has been the establishment of a new branch of art whose professors are called Civil Engineers. As art is open to all, we would not quarrel with these gentlemen, some of them possessing talents of the very highest nature, if they would be content with practising strictly in their vocation. In their designs, even the best that they have produced, though cried up by their partisans which they have in the high places, there are many violations of architectural propriety, so that it would surely not be asking too much of them to submit to the advice and correction of those that have made the arts of design the principal study of their lives.—[Ed.]

manner, and by what laws, they move and act upon each other under different circumstances, with many other particulars of frequent and material use in an art where vast weights are to be moved, and in which structures, of whatever form, must be calculated to carry great and indeterminate burthens, to stand the shock of heavy laden carriages, and to resist the utmost fury of the elements.

By optics, particularly that part which is called perspective, the artist is enabled to judge with precision of the effects of his compositions when carried into execution, and also to represent them more pleasingly in design, as well for his own satisfaction, as to give his employers a more perfect idea of his intentions than could be collected from geometrical drawings. And an acquaintance with the other branches will be useful on many occasions, in the distribution of light, to produce particular striking effects, and in the disposal of mirrors, to create deceptions, multiply objects, and raise ideas of far greater than the real magnitude or extent of that which is exhibited to view.

As to a painter, or sculptor, so to an architect, a thorough mastery in design is indispensably necessary; it is the *sine quâ non*, and the *mai a bastanza* of Carlo Maratta*, is full as applicable in one art as in the others; for if the architect's mind be not copiously stored with correct ideas of forms, and habituated by long practice to vary and combine them as the fancy operates: or if his hand has not the power of representing with precision and force what the imagination suggests, his compositions will ever be feeble, formal, and ungraceful, and he will stand unqualified to discharge the principal part of his duty, which is, to invent and dispose all that enters into his design, and to guide the painter, sculptor, and every other artist or artificer, by advice and precise directions, as far at least, as relates to the outline and effect of their performances, that all may be the effort of one mind, master of its object, and all the parts be calculated to produce a general uniformly supported whole; which never can be the case where artists and artificers are left to themselves, as each, naturally enough, considers the perfection of his own part, sometimes without comprehending, and always without attention to, the whole composition.

* Carlo Maratta, a painter of the Roman School, born 1625, died 1713. He was nicknamed *Carluccio della Madonna* by Salvator Rosa, from his fondness for painting Madonnas. The allusion of the author relates to his never being satisfied with his forms and drapery, which he always employed himself in correcting to the last moment of finishing a picture. Fuseli very justly observes that his talent seldom rose above mediocrity. He was nevertheless extremely popular in his time in Rome, as the churches and palaces there amply testify.—[Ed.]

Even Bernini,* though an able architect, could seldom refrain from sacrificing architecture to the graces of sculpture and painting, the ill consequences of which, are sufficiently conspicuous in several of his works, but particularly in his piazza of St. Peter's, where the statues placed upon the colonnades, instead of standing upright as they should do, in all such situations, are so whimsically contorted, that at a little distance they seem to be performing a dance, and very considerably injure the effect of that magnificent approach to the first building in the Christian world.

To the knowledge, practice, and facility of hand just mentioned, composers in architecture must unite a perfect acquaintance with all kinds of proportions, having relation either to the grandeur, beauty, strength, or convenience of structures, their variations as occasions require, and the different effects which situation, distance, light, or other circumstances have upon them, which is a science of very considerable difficulty, and to be obtained only by much experience and close observation.

He furthermore must be well versed in the customs, ceremonies, and modes of life of all degrees of men, his contemporaries, their occupations and amusements, the number and employments of their domestics, equipages and appurtenances, in what manner the business allotted to each is performed, and what is requisite or proper to facilitate the service, with many other particulars which, though seemingly trifling, must not be unknown to him who is to provide for the wants, and gratify the expectations of all.

Neither must he be ignorant of ancient history,† fable and mythology, nor of antiquities, as far as relates to the structures, sculpture, ornaments, and utensils of the Egyptians, Greeks, Romans, and Etrurians, as the established style of decoration, collects its forms, combinations, symbols, and allusions, from these abundant sources, which time, and the concurring approbation of many ages, have rendered venerable.

The painter's canvas and the sculptor's block, are their ultimate objects; but the architect's attention must at once be directed to the grandeur or

* Giovanni Lorenzo Bernini, born at Naples in 1589, died 1680. His residence was chiefly at Rome, where with great reputation he practised as an architect and sculptor. He was, under Urban VIII., one of the architects of St. Peter's, to which, besides other parts, he added those of the great colonnades in front of the Church and the Baldachino under the Cupola. He was in general request throughout Europe. At Paris he made designs for completing the Louvre (see a subsequent note in Chambray), and for England he executed three busts of Charles I. from a picture by Vandyke. Bernini was also a painter; several of his pictures are in the Florentine Gallery. He received the honour of Knighthood from Gregory V.—[Ed.]

† The author somewhat contradicts himself; at page 86 he seems rather disinclined to admit Vitruvius's qualifications. See note on the passage.—[Ed.]

beauty, strength, duration, fit contrivance, and economical execution of his compositions—qualities that ever clash, and which it often is exceedingly difficult to reconcile. His different plans, elevations, and sections must all be considered at the same time, and, like the parts of a piece of music, be contrived to harmonize and set each other off to most advantage.

To the excellence of the designer's art, must yet be added the humbler, though not less useful skill, of the mechanic and accountant, for, however able the draughtsman, he should not deem himself an architect, nor venture upon practising in that capacity, till master of the executive parts of this profession.

These imply an acquaintance with all the known approved methods of building every kind of structure, securely and for duration; how difficulties arising from situation, nature of soils, or other adventitious circumstances, are to be surmounted, and precisely what precautions the occasion may require, in order to avoid superfluous expense, by avoiding to employ superfluous remedies.

They further imply a power of conducting large works with order and economy, of measuring correctly, according to established usages, of regulating the accounts with accuracy, of employing with discernment, directing and governing with skill and temper, many men of different professions, capacities and dispositions, all without violence or clamour, yet with full effect.

To mastery in these particulars must be added, proficiency in all the arts, liberal or mechanic, having relation to the building or adorning structures—a capacity of determining exactly the goodness of the different materials used, with the degree of perfection and consequent value, at all times, of every kind of work, from the stately splendid productions of the pencil and chisel to the most trifling objects employed in a fabric, together with all the circumstances constituting their value, as upon these its occasional fluctuation must depend.

Considerable as this detail may seem, it is yet insufficient. A builder, like a chemist, must analyse his substances—be so much master of the constituent parts of his composition, their necessary forms and dimensions, that, as those of the profession term it, he may be able to take the whole building to pieces, and estimate from his designs the total amount of the structure before a single stone is prepared.

To ignorance, or inattention in this particular, of which, for serious reasons, no architect should ever be ignorant or careless, must be ascribed the distressful, often the ruinous, uncertainty of common estimates—for some who condescend to estimate their own productions know perhaps, but imperfectly, how their designs are to be carried into execution, and consequently omit in the valuation, much that must be done. And some, who being too great for

such minute investigations, employ others to estimate without describing thoroughly the manner in which they intend to proceed, leave them so much in the dark that, even if capable, they can do little more than guess at the value, and are seldom or ever right in their conjectures.*

Others there are who, being either unqualified or too idle to calculate themselves, and perhaps too parsimonious to employ any other person, for it is a work of time and considerable expense, value by the square—an operation both easy and expeditious, but of all the most fallacious, excepting in common buildings of similar forms and dimensions, built and finished in the same

* The following ironical account of the close of the labours of some who assumed the name of architect was, a few years ago, not very far from the truth. It is extracted from an excellent little book, entitled ΟΙΚΙΔΙΑ, or Nutshells, 8vo. Lond. 1785, by the late James Peacock, of Guildhall, whose virtues and moral excellence will be honoured as long as the memory of his surviving friends remains sound, under the fictitious anagrammatic name of Jose Mac Packe, *a brichlayer's labourer*. At the end of this book he says:—

"It will not be improper, perhaps, to close this little work with another intimation respecting an operation to be performed when the building is finished, and the artist has all the workman's accounts under his hand; this is called *docking*, and is performed two ways, the old manner proceeds cautiously, by analysis and detail, and being very generally known, requires nothing particular to be said of it here.

"The new method stands recommended, on account of the ease and expedition wherewith it is effected, and the great and respectable air the operator derives from it (the general and happy concomitant of ambiguity and mystery); it is certainly a grand objection to the old method, that it requires so great an insight into the nature, qualities and values of all sorts of materials and workmanship; an inferior and intricate kind of knowledge, by far too mean and troublesome for gentlemen of exalted views to attend to. There is, however, one very capital objection to a general use of the new manner, which is that now and then a workman is turbulent and refractory, and pays no more regard to the fiat or dignity of an architect than he would to those of an old apple woman, and would sooner squander his money away among those rogues the lawyers than forego a single guinea of his property to add to or uphold the fame of any architect whatsoever; so that if the artist does not know his man the old manner is abundantly to be preferred, or at least such a degree of relaxation from the new mode as, after mature deliberation, prudence will naturally dictate. This may be very well done without losing sight of that valuable quality or disposition, ever Argus like, awake to, and alert in seizing all kinds of advantages (very often maliciously called low cunning), and which may be exercised in its fullest extent where the workman is known to be a poor ignorant and timorous wretch, foolishly afraid that *law is not always justice*, and whose maxim is that the first loss is generally the least."

Then follows an anecdote of a gentleman who had employed his architect to examine some bills, among them one of a smith whose bill had been *docked*, "who had been under very particular obligations to the gentleman, and from whose bill, apparently of £30, stood a deduction of £6." The gentleman, after expostulating with him for his villainous ingratitude, as well as dishonesty, in attempting such an imposition upon him, assured him "he should have no future opportunity of exercising a similar conduct with respect to him." The smith humbly begged to know the reason. "Reason! Sir, why Mr. ——— informs me here you have overcharged me £6 in this bill." "Why then, Sir," replies Vulcan, "I am £3 in your honour's debt; this is the first time I ever made a charge of this strange nature." The truth is, Vulcan was but a lame scribe, and had inadvertently made the amount of his bill, which was £3, appear so much like £30 that any person, looking no further than at the total, might have made exactly the same mistake the surveyor did.

manner, where the amount of what has been done may be a guide to value by. But in extraordinary works these rapid estimators never hit the mark, and are generally so far wide of it as to draw shame and reproaches on themselves; regret, difficulties, sometimes ruin, both on the employer and the tradesmen employed.

As one in whose honour and judgment the employer confides, and to whom the employed look up for protection and justice as mediator and judge between them on subjects generally important, the architect's skill, vigilance, and activity, should equal the consequence of his station, and, studious to sustain his character, attentive to justify the confidence reposed in him, he must neither inadvertently nor otherwise bring on unexpected ruinous expenses; neither countenance nor suffer imposition on the one hand, oppressive parsimony or ill-directed liberality on the other.

Let it not however be inferred from anything here said that errors in estimation proceed on every occasion from the ignorance or inadvertency of the architect: those who build are often whimsical themselves, or advise with such as are—they are pleased to-day, disgusted to-morrow, with the same object, hence alterations commence, deviation succeeds to deviation, their first ideas are extended, improved, and varied, till, by insensible gradations, both the form and value of the original design are entirely changed.

All that, in such cases, the architect can do, and, in discharge of his duty, should do, is, at the time, to notify by written information the consequences of the alterations taking place. I say written, for words are soon forgot, or, if remembered, explained away, and sometimes denied; but written testimony admits of no equivocation, it cannot be disputed, and will fix the blame where it should be fixed—not on the architect's want of care or judgment, but on the builder's wavering disposition.

Ornamental gardening,* which in Italy, France, and other countries of

* Ornamental gardening was a favorite subject with Sir W. Chambers. In 1772 he published a treatise, in 4to., entitled "A Dissertation on Oriental Gardening," which went to a second edition in the next year. This was much ridiculed in a publication which soon followed it, entitled "An Heroical Epistle to Sir William Chambers, Knight, Comptroller-General of His Majesty's Works, and Author of a late Dissertation on Oriental Gardening," generally attributed to Mason, the author of "The English Garden." It opens with the following verses:—

Knight of the Polar Star! by fortune placed
To shine the cynosure of British taste;
Whose orb collects, in one refulgent view,
The scattered glories of Chinese virtù:
And spreads their lustre in so broad a blaze,
That Kings themselves are dazzled while they gaze.

To this succeeded an "Heroic Postscript to the Public," occasioned by the favorable reception of the

the European continent, constitutes a part of the architect's profession, is here in other hands, and, with a few exceptions, in very improper ones. Should that pleasing art be ever practised by men who have made composition in general a study, who, by having seen much, have stored the fancy with copious imagery, and by proficiency in the arts of design, formed a correct and elegant taste, we might expect to find much more variety and far higher perfection in works of that sort than can now be expected, or is yet to be boasted of.

It seems almost superfluous to observe that an architect cannot aspire to superiority in his profession without having travelled, for it must be obvious that an art founded upon reasoning and much observation is not to be learnt without it: books cannot avail, descriptions, even drawings or prints are but weak substitutes of realities, and an artist who constantly inhabits the same place, converses with the same people, and has the same objects always obtruding on his view, must necessarily have very confined notions, few ideas, and many prejudices. Travelling rouses the imagination: the sight of great, new, or uncommon objects elevates the mind to sublime conception, enriches the fancy with numerous ideas, sets the reasoning faculties in motion; he who has beheld with attentive consideration the venerable remains of ancient magnificence, or studiously examined the splendor of modern times, in the productions of the sublime Buonarroti, Bramante, Vignola, Palladio, Raffaello, Polidoro, Peruzzi, Sansovino, Sanmichele, Ammanati, Bernini, Pietro de Cortona, and many other original masters, whose works are the ornament and pride of the European continent, must have acquired notions far more extensive and superior to him whose information has been gleaned from the copiers, or feeble imitators, of these great men and their stupendous works,—he must be, in composition, more animated, varied, and luxuriant; in design, more learned, correct, and graceful; ever governed by a taste formed at the fountain's head upon the purest models, and impressed with the effect of those great objects, which some time or other in life have been the admiration of most who either claim distinction, or aspire to elegance, he must always labour with greater certainty of success.

By travelling, a thorough knowledge of different countries, their language and manners are alone to be attained in perfection; and by conversing with men of different nations, we learn their opinions, hear their reasons in support of them, and are naturally led to reason in our turn—to set aside our national

Epistle, 4to. Lond. 1774. Then came "A Familiar Epistle to the Author of the Heroic Epistle." The bitterness however of the "Heroic" was adequately retorted in the "Familiar Epistle."—[Ed.]

prejudices, reject our ill-founded maxims, and allow for granted that only which is clearly proved, or is founded on reason, long experience, and careful observation.

Thus habituated to consider with the rigour of critical accuracy, we learn to see objects in their true light, without attention either to casual approbation or dislike, to distinguish truth through the veil of obscurity, and detect pretence however speciously sustained. Travelling, to an artist, is as the university to a man of letters—the last stage of a regular education, which opens the mind to a more liberal and extensive train of thinking, diffuses an air of importance over the whole man, and stamps value upon his opinions; it affords him opportunities of forming connections with the great, the learned, or the rich; and the friendships he makes while abroad are frequently the first causes of his reputation and success at home.*

* Ridolfi (Part i. c. 20) justly observes, "La cognizione di quest' arte non è conceduta ad ognuno, ma riservata a coloro, che con lungo studio hanno di così difficile e laboriosa materia gli ultimi termini appresi."—[Ed.]

OF THE ORIGIN AND PROGRESS OF BUILDING.

Buildings were certainly among the first wants of mankind, and architecture must undoubtedly be classed among the earliest antediluvian arts. Scripture informs us that Cain built a city ;* and soon after the deluge we hear of many cities, and of an attempt to build a tower that should reach the sky †—a miracle stopped the progress, and prevented the completion of that bold design.‡

The first men, living in a warm climate, wanted no habitations ; every grove afforded shade from the rays of the sun, and shelter from the dews of the night ; rain fell but seldom, nor was it ever sufficiently cold to render closer dwellings than groves either desirable or necessary, even in the hour of repose ; they fed upon the spontaneous productions of the soil, and lived without care as without labour.

But when the human species increased, and the produce of the earth, however luxuriant, was insufficient to supply the requisite food ; when frequent disappointments drew on contention, with all its train of calamities, then separation became necessary, and colonies dispersed to different regions, where frequent rain, storms, and piercing cold, forced the inhabitants to seek for better shelter than trees.

At first they most likely retired to caverns formed by nature in rocks, to hollow trunks of trees, or to holes dug by themselves in the earth ; but, soon disgusted with the damp and darkness of these habitations, they began to search after more wholesome and comfortable dwellings.§

The animal creation pointed out both materials and manners of construction—swallows, rooks, bees, storks, were the first builders ; man

* Genesis iv. 17. "And he builded a City, and called the name of the City after his son Enoch."—[Ed.]

† Genesis xi. 3 to 8.

‡ "Tant que les descendans de Noë demeurérent reunis, ils furent à portée de cultiver ce qu'on avoit pu conserver de découvertes antérieures au déluge. Le projet qu'ils conçurent et exécutèrent en partie, de bâtir une Ville dans la plaine de Sennaar, le dessein d'y élever une tour d'une hauteur prodigieuse, prouvent que les nouveaux habitans de la terre n'etoient pas entièrement destitués de connoissances en Architecture." L'Origine des Lois par Goguet, 1 re Ep. liv. ii. c. 3.—[Ed.]

§ Diodorus Sic. lib. i. sect. 8. Vitruvius, lib. i. c. 2. Pausanias, Phocic. c. 17.—[Ed.]

observed their instinctive operations, he admired, he imitated, and, being endued with reasoning faculties, and of a structure suited to mechanical purposes, he soon outdid his masters in the builder's art.

Rude and unseemly, no doubt, were the first attempts; without experience or tools, the builder collected a few boughs of trees, spread them in a conic shape, and covering them with rushes, or leaves and clay, formed his hut, sufficient to shelter its hardy inhabitants at night, or in seasons of bad weather.* But in the course of time men naturally grew more expert; they invented tools to shorten and improve labour; fell upon neater, more durable modes of construction; and forms better adapted than the cone to the purposes for which their huts were intended. They felt the want of convenient habitations, wherein to taste the comforts of privacy, to rest securely, and be effectually screened from troublesome excesses of weathers. They wanted room to exercise the arts to which necessity had given birth; to deposit the grain that agriculture enabled them to raise in abundance; to secure the flocks which frequent disappointments in the chase had forced them to collect and domesticate. Thus stimulated, their fancy and hands went arduously to work, and the progress of improvement was rapid.

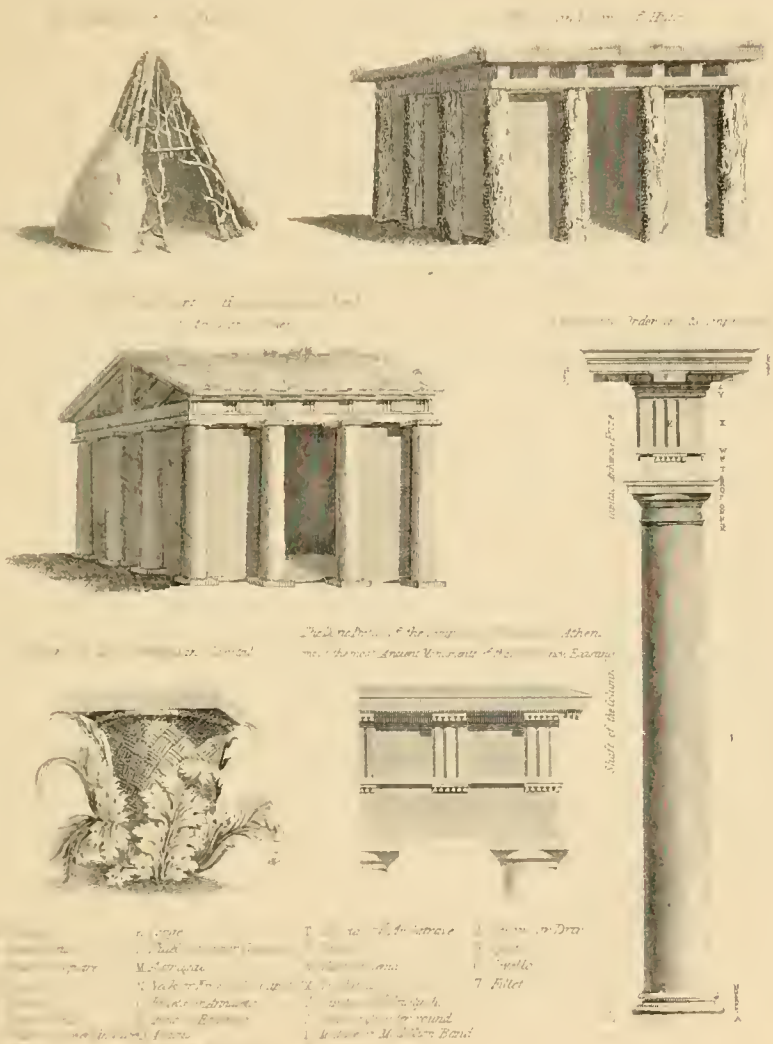
That the primitive hut was of a conic figure it is reasonable to conjecture, from its being the simplest of solid forms and most easily constructed. And wherever wood was found, they probably built in the manner above described, but soon as the inhabitants discovered the inconvenience of the inclined sides, and the want of upright space in the cone, they changed it for the cube; and, as it is supposed, proceeded in the following manner.

Having, says Vitruvius, marked out the space to be occupied by the hut, they fixed in the ground several upright trunks of trees to form the sides, filling the intervals between them with branches closely interwoven and spread over with clay. The sides thus completed, four beams were laid on the upright trunks, which being well fastened together at the angles of their junction, kept the sides firm, and likewise served to support the covering or roof of the building, composed of smaller trees placed horizontally like joists, upon which were laid several beds of reeds, leaves and earth or clay.†

By degrees other improvements took place, and means were found to make the fabric lasting, neat and handsome, as well as convenient. The bark and other protuberances were taken from the trees that formed the sides, these trees were raised above the dirt and humidity on stones, were covered at the

* Diod. Siculus, lib. i. sect. 43. *Καὶ τὰς οἰκήσεις ἐκ τῶν καλάμων κατασκευάζεσθαι.*—[Ed.]

† Vitruvius, lib. ii. c. 1. Strabo, lib. iv. Tacitus de Moribus Germ.—[Ed.]



Shaft of the Column

7 Fillet

Published by the Proprietor of the Building News 1870

top with other stones, and firmly bound round at both ends with osier or cords to secure them from splitting. The spaces between the joists of the roof were closed up with clay or wax, and the ends of them either smoothed or covered with boards. The different beds of materials that composed the covering were cut straight at the eaves, and distinguished from each other by different projections. The form of the roof too was altered; for being, on account of its flatness, unfit to throw off the rains which sometimes fell in great abundance, it was raised in the middle on trees disposed like rafters, after the form of a gable roof.

This construction, simple as it appears, probably gave birth to most of the parts that now adorn our buildings, particularly to the orders, which may be considered as the basis of the whole decorative part of architecture, for when structures of wood were set aside, and men began to erect solid stately edifices of stone, having nothing nearer to imitate, they naturally copied the parts which necessity introduced in the primitive hut*; insomuch that the upright trees, with the stones and cordage at each end of them, were the origin of columns, bases and capitals; the beams and joists gave rise to architraves and friezes, with their triglyphs and metopes; and the gable roof was the origin of pediments, as the beds of materials forming the covering, and the rafters supporting them, were of cornices with their corona, their mutules, modillions, and dentils.

That trees were the originals of columns seems evident, from some very ancient Egyptian ruins still existing; in which are seen columns composed of many small trees tied together with bandages to form one strong pillar, which, before stone was in use, became a necessary operation in a country where no large timber was to be had, and in which the stupendous size of their structures constituted the principal merit. Herodotus describes a stately stone building

* See the Scriptures (*a*), Homer (*b*), Herodotus (*c*), Strabo (*d*), Diodorus Siculus (*e*), Pausanias (*f*), Pliny (*g*), Justin (*h*), Quintus Curtius (*i*).

(*a*) See preceding notes p. 77, and Daniel, iv. 30. Gen. x. 11. Jonah iii. 3, 4. and iv. 11. on Nineveh; —whose size was such that there were in it more than six-score thousand persons who could not discern between their right hand and their left hand, and also much cattle.

(*b*) Iliad I. 381.

(*c*) Herodotus, lib. i.

(*d*) Strabo, lib. xvi; also Arrian. de Exped. Alex. lib. vii.

(*e*) Diodorus, lib. i. ii

(*f*) Pausanias, lib. viii. 33.

(*g*) Plin. lib. xxxvi. sect. xvii.

(*h*) Justin, lib. i. cap. 2.

(*i*) Quintus Curtius, lib. v. c. 1.—[Ed.]

which stood in the court of the temple of Minerva at Sais, the columns of which were made to imitate palm-trees.

The form of the bundle pillar* above mentioned, though deriving its existence from necessity, is far from disagreeable. It was evidently a beauty in the eyes of the ancient Egyptians, since it was imitated by them in stone. And it seems more natural to suppose that fluted columns owe their origin to the intermediate hollows between the trees composing these pillars, than to the folds of a woman's garment, to which they have but very little resemblance.

Vitruvius, the only remaining ancient writer upon the decorative part of architecture, ascribes almost every invention in that art to the Greeks—as if till the time of Dorus it had remained in its infant state, and nothing had till then appeared worth notice; and most, if not all the modern authors, have echoed the same doctrine. Yet, if ancient history be credited, the Egyptians, Assyrians, Babylonians, and other nations of remote antiquity, had exhibited wonders in the art of building even before the Grecians were a people.†

It must indeed be confessed, that though the works of the Asiatic nations were astonishing in point of size and extent, yet in other respects they were of a nature calculated rather to give a high idea of the power and wealth of the founders, than of their skill or taste. We plainly see that all their notions of grandeur were confined to dimension, and all their ideas of elegance or beauty

* Stone as a material in building, was not likely to succeed to the wood of the huts mentioned by the author. The cutting and dressing it must have taken considerable time to conquer. Bricks dried in the sun, most probably followed timber as a material for enclosures. These indeed were employed in building the tower of Babel. "And they said one to another, go to, let us make brick, and burn them thoroughly. And they had brick for stone, and slime had they for mortar." Gen. xi. 3. Brick was much used at a remote period among the Egyptians. Exod. i. 14. v. 7.—[Ed.]

It is an inference by no means clear or necessary, that the basis of decorative architecture is indebted to the earlier timber framework for its origin—inasmuch as the step between the hut and the Grecian Temple is, if the Greeks gained any knowledge of the art from the Egyptians, which it is presumed cannot be denied, the flat roofed Temple of Egypt, in whose large hollowed crown moulding, mutules or blocks are not readily traced. It is not meant to mislead the student by denying the hypothesis; he is only cautioned against an admission of it entirely, without much more research than can be entered into here of the current story on this point which has been so generally adopted. It is doubtless from the covering of roofs with timber, that the pediment has its origin, but this was probably at a late period and at a time when the art was considerably advanced. The student will do well to read carefully the chapters on Architecture in Goguet's "Origine des Lois."—[Ed.]

† The favourite system of reducing each component part of an order to its corresponding type in an assemblage of timbers, is one which, at this distant period from the origin of the art, is, to say the least of it, not likely to prove satisfactory. The timber system has had its admirers in these later days, even in Gothic architecture, whose invention is so much nearer our own time, see the wood and wicker churches in Sir James Hall's "Essay on the Origin, History and Principles of Gothic architecture," 4to, Lond. 1813. But the result has not been attended with conviction.—[Ed.]

to richness of materials or gaudiness of colouring. We observe a barrenness of fancy in their compositions, a simplicity and sameness in their forms, peculiar to primitive inventions. But even in the early works of the Egyptians, beside their prodigious dimensions, there are evident marks of taste and fancy. It is in them we trace the first ornamental forms in architecture, and to their builders we are most probably indebted for the invention of columns, bases, capitals and entablatures. We likewise read of roofs supported by figures of colossal men and animals* in the works of the Egyptians, several ages before the introduction of Persians or Caryatides in the structures of Greece, and of temples adorned with stately porticoes, enriched with columns and sculpture, and built before there were any temples in Greece.

Hence it may be inferred that the Grecians were not the inventors of ornamental architecture, but had that art, as well as their religion and gods, from the Egyptians—or from the Phœnicians their nearer neighbours, whose skill in arts is said to have been anterior to theirs—though both were of Egyptian origin.

Diodorus Siculus observes†, that the Egyptian priests proved, both by their sacred records and also by other undoubted testimonies, that not only the poets and philosophers of Greece travelled anciently into Egypt to collect their knowledge, but also their architects and sculptors, and that everything in which the Grecians excelled, and for which they were famous, was originally carried from Egypt into Greece.

The Phœnicians however were very early celebrated for their proficiency in the arts of design,‡ and there is no doubt but the Greeks availed themselves of their inventions.

We are told that Hiram§ made two capitals for the pillars Jachin and

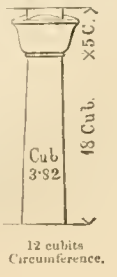
* See subsequent note under the section on Persians and Caryatides.—[Ed.]

† *Καίπερ γὰρ τῆς χώρας τὸ παλαιὸν τοῖς ξένοις ἐυσεπιβάτον οὔσης διὰ τὰς προειρημένας αἰτίας ὅμως ἔσπευσαν εἰς αὐτὴν παραβαλεῖν, τῶν μὲν ἀρχαιοτάτων Ορφεὺς, καὶ ὁ ποιητὴς Ομηρος· τῶν δὲ μεταγενεστέρων ἄλλοι τε πλείους καὶ Πυθαγόρας ὁ Σάμιος, ἐτι δὲ καὶ Σόλων ὁ νομοθέτης.* Diod. Sic., lib. i.—[Ed.]

‡ 1 Kings, v. 6.

"Ils s'appliquèrent à cultiver les arts, et bientôt ils y firent les plus grands progrès." Goguet, Origine des Lois, 1re Epoque, liv. iv. The Tyrian dye is sufficiently celebrated. See on this point Bochart Phaleg. lib. iv. 35.

§ Kings, vii. 13, 14.—"And King Solomon sent and fetched Hiram out of Tyre. He was a widow's son of the tribe of Naphtali, and his father was a man of Tyre, a worker in brass: and he was filled with wisdom and understanding, and cunning to work all works in brass.—And he came to King Solomon, and wrought all his work. For he cast two pillars of brass, of eighteen cubits high a piece: and a line of twelve cubits did compass either of them about," et seq. By the diagram in the margin constructed on the text, it is evident that the proportions were similar to those of the Egyptian column. The lily-work mentioned as decorating the chapiters will no less bring to the reader's mind, the lotus leaves found in almost all the Egyptian capitals.—[Ed.]



Boaz, in Solomon's temple; which, as far as can be collected from the accounts given of them in several parts of Scripture, very much resembled the Corinthian capital both in form and proportions, though executed some centuries before Callimachus is reported by Vitruvius to have invented it at Corinth. The cherubim of Hiram too, and the colossal figures of men and animals in the structures of the Egyptians, were prior inventions, and undoubtedly suggested to the Greeks their ideas of Persians and Caryatides.

And though architecture is certainly indebted to the Grecians for considerable improvements, yet it may with confidence be averred that they never brought the art to its utmost degree of excellence. The art of building, says Leon Baptista Alberti,* "sprang up and spent its adolescent state in Asia; after a certain time it flowered in Greece, and finally acquired perfect maturity in Italy among the Romans." And whether we call to mind the descriptions given by ancient writers of Nineveh, Babylon, Thebes, Memphis, the Egyptian pyramids, the sepulchres of their kings, their temples, and other public monuments, or contemplate, among the Roman works, their palaces, amphitheatres, baths, villas, bridges, mausoleums, and numerous other yet existing testimonies of their splendour; it must candidly be confessed that the Grecians have been far excelled by other nations, not only in the magnitude and grandeur of their structures, but likewise in point of fancy, ingenuity, variety, and elegant selection.

How distant the Grecians were from perfection in proportions, in the art of profiling, and other parts of the detail, will soon be evident to any impartial examiner, who compares the publications of Le Roi, Stuart, Revett, and other

* Leonis Baptistæ Alberti, Florentini, Libri de Re Ædificatoriâ Decem, lib. vi. c. 3.

Alberti, an eminent Italian architect, and one of the earliest scholars that appeared on the revival of letters, was born at Venice in the end of the fourteenth or beginning of the fifteenth century. Milizia gives the year 1398 as that of his birth. He died about 1472. In 1447 he became a canon of Santa Maria del Fiore at Florence—in the conduct of the works of which fabric he succeeded Brunelleschi. He was one of the restorers of pure architecture in Italy, which abounds with his works.—The Church of San Francesco at Rimini is considered his best. The works of Alberti, written in Latin, are—His Dialogue, entitled, "Momus de Principe," Rome, 1520.—"Trivia, sive de causis senatoriis," 4to, Basil, 1538.—He composed 100 "Fables" or Apologues, and a poem, entitled "Hecatomphile," on the art of Love, which was translated by Bartoli into Italian 1568, and into French in 1534 and 1584. Many treatises on Philosophy, Mathematics, and Antiquity. One on Sculpture, and another "De Picturâ, præstantissimâ et numquam satis laudatâ arte." His treatise "De Re Ædificatoriâ," was first published by his brother Bernard after his death, fol. Florence, 1485. It is addressed by Politian to Lorenzo de Medici, by whom it was patronised. Another edition in 4to. was printed in Paris, 1512. It was translated into Italian by Peter Lauro, small 4to. Venice, 1546, Chalmer's Biog. Dict. says 1549; by Cosimo Bartoli, fol. Florence, 1550, and into English by James Leoni, from the Italian of Bartoli, 3 vols. fol. London, 1726; in one vol. 1755. The last edition was printed at Bologna, 1782. Vasari attributes to Alberti the invention of the camera obscura.—[Ed.]

ingenious Levantine travellers* with the antiquities of the Romans, either on the spot, or as they have been given in books, by Palladio, Serlio, Desgodetz, Sandrart, Piranesi, and other authors. The last of those here mentioned has

* It is but fair to give the answer of Mr. Willey Reveley, to the remarks which the author thought right to make on Grecian architecture, with a caution, however, to the reader against a belief that Sir William Chambers would have been fearful of entering the lists during Stuart's lifetime, an insinuation which the ingenious editor of the third volume of 'Stuart's Athens' has, perhaps, in the heat of the controversy, inadvertently thrown out.

"Though I can add nothing to the high reputation of Grecian art, it seems incumbent upon me, as having superintended the publication of the present work, not to pass wholly unnoticed the observations which have been lately given to the world by Sir W. Chambers on this subject—observations which have so little foundation in real facts or in just taste as must detract greatly from his weight and consequence as an author, and produce a general regret, amongst those best acquainted with the subject, that a work of such real merit should labour under so unfavourable a prejudice. What, indeed, but the most determined antipathy could have led him to the extremity of attempting utterly to exclude the architectural productions of the Grecians from the studies of the artist? Thus it is that men are ever prone to undervalue the advantages they do not possess; and it is with equal propriety that other artists might represent travelling as wholly unnecessary, and maintain that prints and descriptions convey as complete a knowledge of the most celebrated buildings of antiquity as actual inspection. Crude and incoherent attempts at execution would then bring the art itself into contempt." Stuart and Revett's Antiq. of Athens. Vol. III. Lond. 1794. Preface, p. x.

Again, Preface, p. xi: "The task of replying to the arguments and insinuations of this author would no doubt have been performed by Mr. Stuart had they been published in his lifetime, as Sir William seems to have first intended (p. 26, Sir W. C.). But they were kept back from the public till the death of that indefatigable and valuable traveller. I feel it therefore incumbent upon me to defend him against this posthumous attack."

Same page, we have "Sir William has taken his notions on Grecian architecture from 'books and prints' only, expressly contrary to his own advice to students, and has been guided by the imperfect specimens of Le Roi, who, though an ingenious author, is well known to have visited Greece in the most rapid and cursory manner, and has therefore fallen, as might be expected, into the most glaring errors. A flagrant instance of Sir W.'s inaccuracy occurs where he speaks of the Lantern of Demosthenes and the Parthenon, which, by mentioning together, he treats as if they were similar, and respecting which he affirms, in direct contradiction to the fact, that the Parthenon is not so considerable as the church of St. Martin-in-the-fields. The comparative dimensions of each are as follows:—

	St. Martin's.		Parthenon.		Excess in favour of the Parthenon.	
	Ft.	In.	Ft.	In.	Ft.	In.
Length	161	9	227	7	65	10
Breadth	80	9	101	1	20	4
Height of Columns	33	4	34	2·8	0	10·8
Diameter of ditto	3	4	6	1·8	2	9·8
Number of ditto	16		58			
Height of the Entablature—supposed $\frac{2}{9}$ths of the Column	7	4	11	2·8	abt. 3	10
Height of the whole Order	40	8	45	5·6	5	9·6
Breadth of Portico	66	10	101	1	34	3

"The measures of both are taken on the upper step. Artists who ever saw an antique temple or ever read Vitruvius, know that St. Martin's Church, though one of the best in London, is no more than a very

published a parallel between the fairest monuments of Greece and Rome, which is recommended to the inspection and perusal of those who have not yet seen it.

Indeed, none of the few things now existing in Greece, though so pompously described and neatly represented in various publications of our time, seem to deserve great notice, either for dimensions, grandeur of style, rich fancy, or elegant taste of design; nor do they seem calculated to throw new light upon the art, or to contribute towards its advancement, not even those erected by Pericles or Alexander, while the Grecian arts flourished most; neither the famous lantern of Demosthenes, nor the more famous* Parthenon, which, though not so considerable as the church of St. Martin, in St. Martin's Lane, exclusive of its elegant spire, had for its architects Phidias, Callicrates, and Ictinus; was the boast of Athens; and excited the envy and murmurs of all Greece. We find indeed, in Pliny and other ancient writers very pompous descriptions of temples, such as that of Apollo at Miletus, of Ceres and Proserpine at Eleusis, of the Olympian Jupiter at Athens, and above all, of Diana at Ephesus, one of the seven wonders of the world. But if the Grecian architecture was defective in the time of Alexander, it must have been more so some centuries earlier; and concerning temples built in bogs,† and founded upon wool to resist earthquakes, and of which the stones were set with sandbags, some doubts may be indulged, as well as of those made of wax,‡ yet resisting the ardor of a Grecian sun; or those of brass, yet catching fire and melting down.

At first sight it may appear extraordinary that a people so renowned in arms, so celebrated for poetry, rhetoric, and every sort of polite learning, and who carried sculpture further than any of the ancient nations, should be so deficient in architecture; yet, upon further consideration, many reasons will occur why it necessarily should be so: Greece, a country small in itself, was divided into a number of little states, none of them very powerful, populous, or

inferior imitation of the Greek Prostyle temple, and will not enter into the slightest degree of comparison with the chaste grandeur, the dignified simplicity and sublime effect of the Parthenon."

This note has already extended to such length that the reader must refer to the pages of Mr. Revcley's preface for the remainder of the contest, they are too long to extract; it is therefore closed by observing that the advocates of what may be truly called the sublime architecture of Greece seem to forget the lines of Virgil:

Fraxinus in sylvis pulcherrima, pinus in hortis,
Populus in fluviis, abies in montibus altis;

and that the deposit of a Greek temple in the streets of London cannot be considered a mark of good taste; or if it be, that the Banqueting House at Whitehall ought to be held up in derision.—[Ed.]

* Plutarch in Pericl.—[Ed.]

† Pliny, lib. xxxvi. cap. 14.—[Ed.]

‡ Pausanias Phocid. c. 6.—[Ed.]

rich, so that they could attempt no very considerable works in architecture, having neither the space, the hands, nor the treasures that would have been necessary. "It must be owned," says Monsieur D'Ablancourt,* "that Greece, even in the zenith of her greatness, had more ambition than power: we find Athens flattering herself with the conquest of the universe, yet unable to defend her own territories against the incursions of her neighbours; and who can refrain from laughter at the Lacedemonians—rivals in fame with the Athenians, yet in despair, and reduced to sue for peace by the loss of four hundred men!" The lake of Mœris would have deluged all Peloponnesus, and ruined all Greece; Babylon would have covered Attica, and more men had been employed to build that city than there were inhabitants in all the Grecian states. The Egyptian labyrinth was a hundred times larger than that of Crete, and more materials have been employed in one of the Egyptian pyramids than were used in all the public structures of Athens.

If at the same time it be recollected that Greece, while divided into many governments, was constantly harassed with domestic wars, and, from its union, always in an unsettled situation; that an uncommon simplicity of manners prevailed among the Grecian states, and the strictest maxims of equality were zealously adhered to in most of them, it will be easy to account for the small progress made by the Greeks in architecture. Demosthenes† observes, that the houses of Aristides, Miltiades, or any other of the great men of their time, were no finer than those of their neighbours, such was their moderation, and so steadily did they adhere to the ancient manners of their country. One of the laws of Lycurgus ordained that the ceilings of houses should only be wrought by an axe, and their gates and doors be left rough from the saw—no other tools than these being permitted, which law was so scrupulously observed among the Lacedemonians that, when King Leotychidas saw, at Corinth, a ceiling, of which the timbers were neatly wrought, it was so new a sight to him that he asked his host, if trees grew square in that country. It seems, indeed, as if these sumptuary laws of Lycurgus had made a general impression, and inspired the Greeks rather with contempt than veneration for splendid

* Nicholas Perrot, Sieur d'Ablancourt, a man, says Bayle, more celebrated for his Translations than his original productions, was born in 1606, and died in 1664. He published Versions of many ancient authors, among which were the works of Tacitus, Lucian, Cæsar, Thucydides and Arrian. See his Thucydides for the quotation of the author; and for a list of his works, Moreri's Dict.—[Ed.]

† Demosthenes merely mentions the great frugality of Aristides, saying nothing respecting his private dwelling. The houses of Themistocles and Miltiades are alluded to in the Oratio adv. Aristocratem. The words are, *Τεκμήριον δὲ Θεμιστοκλέους μὲν γὰρ οἰκίαν, καὶ τὴν Μιλτιάδου, καὶ τῶν τότε λαμπρῶν, εἴτις ἄρα οἶδεν ὑμῶν ὁποία ποτ' ἐστίν, ὁρᾷ τῶν πολλῶν οὐδὲν σεμνοτέραν οὖσαν.*—[Ed.]

structures; even in their best time they accounted it an effeminate folly to be ostentatious in that respect. "All the states of Greece," says Plutarch, "clamoured loudly against Pericles for decorating Athens like a vain fantastic woman, and adorning it with statues and temples, which* cost a thousand talents."†

What magnificence the Grecians displayed in their structures was confined to their public buildings, which were chiefly temples, wherein there appears to have been nothing very surprising either for dimensions, ingenuity of contrivance, or excellence of workmanship. Greece, almost constantly the theatre of war, abounded not like Italy in magnificent villas, where the richest productions of art were displayed. Their public roads were not adorned with mausoleums to commemorate their heroes, nor the towns with arches or bridges to celebrate their triumphs. The Grecian theatres were inconsiderable, compared with those of the Romans; the naumachiæ and amphitheatres unknown amongst them, as were also the thermæ in which the Romans affected so much splendor.

In latter times, indeed, the Greeks, particularly the Athenians, abated of their original severity: the orator above mentioned observes that, in his time there were some private houses more magnificent than public edifices; but this does not appear to have been very common, and consequently could not be productive of much additional splendor; even Alcibiades, the most luxurious Greek of his time, for he was accused of wearing a purple cloak, and of sleeping upon a bed with a canvas bottom, doth not seem to have been better lodged than other Athenians, excepting that his house was painted.

Since, therefore, the Grecian structures are neither the most considerable, most varied, nor most perfect; it follows that our knowledge ought not to be collected from them, but from some purer, more abundant source, which, in whatever relates to the ornamental part of the art, can be no other than the Roman antiquity yet remaining in Italy, France, or elsewhere—vestiges of buildings erected in the politest ages by the wealthiest, most splendid, and powerful people of the world, who, after having removed to Rome, from Carthage, Sicily, Egypt, and Greece, the rarest productions of the arts of

* The Parthenon is said to have cost a thousand talents, not quite so much as was expended in onions and radishes at the building of a pyramid. See Diodorus Siculus (*a*).

† "Ὥσπερ ἀλαζόνα γυναῖκα περιαπτομένην λίθοις πολυτελεῖς, καὶ ἀγάλματα, καὶ ναοὺς χιλιοταλάντοις."—Plutarchi Pericles.—[Ed.]

(*a*) Lib. i. Ἐπιγέγραπται δ' ἐπὶ τῆς μείζονος τὸ πλῆθος τῶν ἀναλωθέντων χρημάτων ὡς εἰς λάχανα καὶ σκοροδίαν τοῖς ἐργάταις· καὶ μενύεται διὰ τῆς γραφῆς δεδαπανῆσθαι τάλαντα πλείω τῶν χιλίων καὶ ἑξακοσίων.—[Ed.]

design; as also the ablest artists of the times, were constantly employed, during many centuries, in the construction of all kinds of edifices that either use, convenience, luxury or splendor required. Pliny* informs us that the works of the Romans were much more considerable than those of any other people; that in the course of thirty-five years more than a hundred sumptuous palaces had been erected in Rome, the most inconsiderable of which was fit for the residence of a king, and that in his own time, the time of Vespasian, there were a great number much more splendid than any of the hundred above mentioned. The palaces of Caligula and Nero were in extent like towns, and enriched with everything that the most exquisite taste and the most unbounded liberality could suggest.

The Romans began early to cultivate architecture: several considerable works were erected by their kings, and many more during the magistracy of their consuls. Julius Cæsar was passionately fond of that art; and, besides the buildings erected by him in Rome,† "he embellished with considerable structures," says Suetonius, "the principal cities of Italy, France, Spain, Asia, and Greece."‡ Augustus boasted on his death-bed that he had converted Rome into a city of marble:§ he not only built much himself, but excited his friends to follow the example; and Mecænas, his favourite and minister, was the patron of arts, as well as of letters.

Caligula‖ and Nero¶ were, to the utmost, splendid in their buildings. The latter carried his passion for architecture, as it is said, even to the extravagant excess of burning Rome, that he might have the pleasure of

* Pliny in his 36th book, to which the reader must refer for a more extended account, dilates on the magnificence of the city. Speaking of the palace of Lepidus, which at the time of its construction was considered in the first rank, he says: "At hercule intra annos xxxv eadem centesimum locum non obtinuit." Plin. Hist. Nat. 4to. Delph. 1685. Tom. v. p. 311.—[Ed.]

† Nam de ornandâ instruendâque urbe, item de tuendo ampliandoque imperio, plura ac majora in dies destinabat. In primis Martis Templum, quantum nusquam esset, exstruere, repleto et complanato lacu in quo naumachiæ spectaculum ediderat; theatrumque summæ magnitudinis Tarpeio monti adcubans. Suetonius in Vitâ Jul. Cæsaris, sect. 44; see also sect. 36. Dio Cassius, lib. xliii. cap. 22, 25. Plin. xxxvi. 15, &c.—[Ed.]

‡ Superque Italiæ, Galliarumque et Hispaniarum, Asiæ quoque et Græciæ potentissimas urbes præcipuis operibus exornans. Suetonius in Vitâ Jul. Cæsaris, sect. 28.—[Ed.]

§ Urbem neque pro majestate imperii ornatam, et inundationibus incendiisque obnoxiam, excoluit adeo, ut jure sit gloriatus, marmoream se relinquere, quam latericiam accepisset. Suetonius, Cæsar Octavian. sect. 28. Dio Cassius, lib. li. c. 22: liii. c. 1, 2, 27: liv. c. 25, 26: lv. c. 8, 12: lvi. c. 25, 27.—[Ed.]

‖ Suetonius, Cæs. Calig. lib. iv. sect. 21, 22, 37. Dio Cassius, lib. v. c. 7.

¶ Formam ædificiorum urbis novam excogitavit: et ut ante insulas ac domos porticus essent, de quarum solariis incendia arcerentur: easque sumtu suo exstruxit. Suetonius, Nero, sect. 16, 31 also, wherein is an account of the *Domus Aurea*, 38. Suetonius, Vita Neronis. Dio Cassius, lib. lxii. c. 16, 18.

rebuilding it with greater regularity and magnificence, which he afterwards did.

During the reigns of Claudius,* Vespasian,† Titus,‡ Domitian,§ and Nerva, many very considerable public works were erected both at Rome and in other parts of the Roman dominions; and Vespasian not only re-edified the capitol with greater magnificence than before, but also all the other public buildings of Rome, which had suffered by the outrages of the Vitellians. He obliged the proprietors of ruined houses to rebuild them, and caused to be erected several new edifices of great cost and magnificence, such as the Temple of Peace, the largest covered building of antiquity; another, dedicated to Minerva, of the richest and most exquisite workmanship ever exhibited in Rome, the first artists then alive having been employed to paint, carve, and incrustate the same. He also built the largest amphitheatre in the world, capable of containing eighty thousand spectators, and many other works of less note. His care and munificence extended themselves in like manner to all other parts of the Roman empire, in which he erected new cities and towns, repaired, adorned, and fortified such as were old or ruinous.

Titus, his successor, was so attentive to the beauty of his metropolis that, when a dreadful fire had destroyed many of its temples and public buildings, he resolved to re-edify them at his own charge, with all possible expedition, disposing of the furniture and ornaments of his own palaces to defray the expense. Death prevented the completion of his intentions; but Domitian finished what he had left undone, and also adorned Rome with many new structures, particularly with a palace, surprising for the magnificence of its colonnades, the number of its rooms, the splendor of its baths and female apartments. His love for building was such that he wished to be another Midas, to the end that he might indulge his passion without control.

Trajan, in whose reign the Roman empire was in its most flourishing state, cultivated all the arts of design, and with the assistance of the celebrated Apollodorus, his principal architect, executed many very considerable works. He erected a bridge of stone over the Danube, sixty feet wide, one hundred and fifty feet high, and almost two miles in length. He also built several cities among the Dacians, embellished Rome and other parts of Italy with

* Dio Cassius, lib. lvi. c. 10, 13.

† Ibid. lib. lxvi. c. 15. Suetonius, lib. viii. c. 8, 9, 18.

‡ Suetonius, lib. viii. c. 8.

§ Ibid. Vitâ Domitiani, c. 5, "Plurima et amplissima opera incendio absumta restituit," but he deprived the founders of all share of praise, "Omnia sub titulo tantum suo, ac sine ullâ pristini auctoris memoriâ."

many public edifices, rebuilt Antioch, which had been almost totally destroyed by an earthquake, and also repaired many other towns in Syria that suffered at the same time by the same calamity.*

Adrian,† whose skill in different branches of polite knowledge is well known, particularly in the arts of design, embellished various parts of the Roman empire with splendid and beautiful structures, such as his bridge and mausoleum at Rome, his villa near Tivoli, his wall in Britain, which extended from the river Eden in Cumberland to the Tyne in Northumberland; many temples and other public buildings in Gaul, in Greece, and in Africa, where he re-edified a considerable part of Carthage. He also rebuilt Jerusalem which Titus had demolished about sixty years before, and erected, in Egypt, a stately pillar to the memory of Pompey.

Antoninus Pius‡ re-edified a great part of Rome, Narbonne, Antioch, and Carthage, all which cities had suffered considerably by fire. And it was his custom whenever any damage happened to a city by an earthquake, a fire, an inundation, or other calamitous accidents, to repair it with money taken out of the public treasury. He greatly improved the ports of Terracina and Gaeta, built considerable baths at Ostia, aqueducts at Antium, temples at Lavinium; and all must be sensible how powerfully the example of princes operates upon the minds of their subjects, inspires the same passions, and excites to the same pursuits.

In short, architecture continued to flourish among the Romans, though with abated lustre, till Constantine removed the seat of empire to Byzantium,

* Dio Cassius, Lib. lxviii. c. 13, where the reader will find an account of this extraordinary bridge. See also the same book, c. 15 and 16, for other works by him. His architect, Apollodorus, is mentioned in a subsequent note.—[Ed.]

† Dio Cassius, Lib. lxix. c. 16. Ælius Spartianus, in vitâ Adriani Cæsaris. Hist. Aug. Scriptores, Lug. Bat. 1671, p. 179 et seq.—[Ed.]

‡ Opera ejus hæc extant Romæ. Templum Adriani honori patris dicatum, Græco-stadium post incendium restitutum, instauratum amphitheatrum, Sepulchrum Adriani, Templum Agrippæ, Pons Sublicius, Phari restitutio, Cajetæ portus, Tarracinensis portus restitutio, Lavacrum Ostiense, Antiatum aquæductus, Templa Lanuviana. Multas etiam civitates adjuvit pecuniâ, ut opera vel nova facerent, vel vetera restituerent. Julius Capitolinus, Vitâ Antonini Pii.

"In less than a century Constantinople disputed with Rome itself the pre-eminence of riches and numbers," A.D. 334, Gibbon's Decline and Fall, Vol. III. 8vo. edit. But taste and skill were on the wane. In another part he states that "The magistrates of the most distant provinces were therefore directed to institute schools, to appoint professors, and, by the hopes of rewards and privileges, to engage in the study and practice of architecture a sufficient number of ingenious youths who had received a liberal education. The buildings of the new city were executed by such artificers as the reign of Constantine could afford." "To revive the genius of Phidias and Lysippus surpassed indeed the power of a Roman Emperor." Ibid. At a later period, namely, in the time of Justinian, the church of St. Sophia showed an accession of skill, which, however, wanted art to captivate.—[Ed.]

and the number of stately structures with which Rome and the Roman dominions abounded is almost incredible. Their very remains excite at this day the astonishment and admiration of every judicious beholder, in spite of all that length of time, wars, party rage, barbarism, casual events, superstition, and avarice have done to destroy them.

In these remains there will be found abundant materials to work upon, and form a complete system of decorative architecture. The labours of the celebrated masters of the fifteenth, sixteenth, and seventeenth centuries may, perhaps, be added to enrich the stock, and we may avail ourselves of their labours to facilitate or shorten our own; but it should always be remembered that, though the stream may swell in its course by the intervention of other supplies, yet it is purest at the fountain's head. And whoever aims at being superiorly eminent in any profession must not receive his information at second hand from others, but mount himself to the origin and reason of things. "The man," says Michael Angelo, "who follows another always is behind, but he who boldly strikes into a different path may climb as high as his competitor, and though the road be somewhat more rugged, yet, if his efforts are crowned with success, the reward will amply compensate for the risk and labour of the enterprise."

An anonymous Italian writer observes, that the superiority of Raphael, may perhaps be owing to his having been so universally admired and copied; that the modern sculptors never equalled the ancient, because they have done nothing but imitate them; and if, says he, all the ancient paintings hitherto discovered are inferior to the modern, it is perhaps owing to our painters not having had the works of an Apelles to copy.

Nature is the supreme and true model of the imitative arts, upon which every great artist must form his idea of the profession in which he means to excel; and the antique is to the architect what nature is to the painter or sculptor—the source from which his chief knowledge must be collected, the model upon which his taste must be formed.

But as in nature few things are faultless, so neither must it be imagined that every ancient production in architecture, even among the Romans, was perfect or a fit model for imitation, as blind adorers of antiquity are sometimes disposed to believe. On the contrary their remains are so extremely unequal that it requires the greatest circumspection and effort of judgment to make a proper choice. The Roman arts, like those of other nations, had their rise, their era of perfection, their decline. At Rome, as in London or Paris, there were few great architects, but many very indifferent ones; and the Romans

had their connoisseurs, as we have ours, who sometimes would dictate to the artist, and cramp the fortunate sallies of his genius, force upon him and the world their own whimsical productions, promote ignorant flatterers, discourage, even oppress, honest merit.

Vitruvius, supposed to have lived in the Augustan age, complains loudly of this hardship, and there is a remarkable instance of the vindictive spirit of an ancient connoisseur, in Adrian, who put to death the celebrated Apollodorus,* for having ventured a shrewd remark upon a temple designed by that Emperor, and built under his direction.

In the constructive part of architecture the ancients do not seem to have been great proficients. I am inclined to believe that many of the deformities observable in the Grecian buildings must be ascribed to their deficiency in that particular, such as their gouty columns, their narrow intercolumniations, their disproportionate architraves, their hypæthral temples, which they knew not how to cover, and their temples with a range of columns running in the centre to support the roof, contrary to every rule either of beauty or convenience.

Neither were the Romans much more skilful; the precepts of Vitruvius and Pliny on that subject are imperfect, sometimes erroneous, and the strength or duration of their structures is more owing to the quantity and goodness of their materials than to any great art in putting them together. It is not therefore from any of the ancient works that much information can be obtained in that branch of the art.

To those usually called Gothic architects we are indebted for the first considerable improvements in construction; there is a lightness in their works, an art and boldness of execution, to which the ancients never arrived, and which the moderns comprehend and imitate with difficulty. England contains

* The story is to be found in Dio Cassius, Reimari Ed. Hamburg, 1752, fol. 1153. Hadrian had sent the designs of a temple he proposed to build in honour of Venus and Rome for the opinion of Apollodorus, or rather to show the architect that he could manage without his assistance, a bravado to which the artist replied by observing that the building would be too low if the statues of the Goddesses should ever be inclined to rise up from their seats for the purpose of walking out to take the air, "*ἂν γὰρ αἱ θεαὶ, ἔφη, ἐξαναστήσεσθαί τε καὶ ἐξελθεῖν ἐθελήσωσιν, οὐ δυνηθήσονται.*" Another anecdote of this independent architect, from the same author, and just preceding what has just been alluded to, will perhaps be better given in the words of Casaubon. Note on a passage of Ælius Spartianus in his life of Hadrian. See the Historiæ Augustæ Scriptores, "Apollodoro architecto, de suis operibus aliquid cum Trajano communicanti, cepit *παραλαλεῖν* et obstrepere Hadrianus: cui architectus, *Abi et cucurbitas γράφε*: *nam horum nihil scis.* Videtur respexisse ad aliquam Hadriani tabulam ubi cucurbitas feliciter pinxisset."—[Ed.]

many magnificent examples of this species of architecture, equally admirable for the art with which they are built, the taste and ingenuity with which they are composed.*

One cannot refrain from wishing that the Gothic structures were more considered, better understood, and in higher estimation, than they hitherto seem to have been. Would our dilettanti, instead of importing the gleanings of Greece—or our antiquaries, instead of publishing loose incoherent prints, encourage persons duly qualified to undertake a correct elegant publication of our own cathedrals and other buildings called Gothic, before they totally fall to ruin, it would be of real service to the arts of design, preserve the remembrance of an extraordinary style of building now sinking fast into oblivion, and at the same time publish to the world the riches of Britain in the splendour of her ancient structures.†

Michael Angelo, who, skilled as he was in mathematical knowledge, could have no very high opinion of the ancient construction, boasted that he would suspend the largest temple of antiquity, meaning the Pantheon, in the air, which he afterwards performed in the cupola of St. Peter's, at Rome. And Sir Christopher Wren has conducted all parts of St. Paul's, and many others, his numerous admirable works, with so much art that they are, and ever will be, studied and admired by all intelligent observers. To him, and to several ingenious artists and artificers since his time, we owe many great improvements in carpentery, which the English have established upon better principles, and carried to higher perfection than any other nation.

Some of the French architects have likewise been very skilful in construction. The mason's art in particular has been considerably improved by that nation. And we are indebted to the French, to the Italians, and to a

* There is more constructive skill shown in Salisbury and other of our cathedrals than in all the works of the ancients put together. The balance of the thrusts of the different arches—the adjustment of thickness in the vaultings and the exceeding small ratio of the points of support in these buildings to their whole superficies—and added to these the consequent lightness and elegance of form which they exhibit, leave us nothing to desire in this respect.—[Ed.]

† Since the author's time this desideratum has been, in a great measure, accomplished by the great and valuable labors of the author of the Architectural Antiquities of Great Britain. The indefatigable exertions of John Britton, Esq., F.S.A., and the care with which he has perpetuated the remains of our ancient architecture, entitle him to the gratitude of all lovers of the fine arts. The descriptions and delineations of the cathedrals now in course of publication are of the highest class. That which in another nation would have been done at the expense of the Government, this enterprising and able antiquarian has nearly completed at his own risk, in the most judicious and elegant manner.—[Ed.]

few of our own countrymen, for many valuable books,* in which the manner of conducting great works is taught, the necessary machines, tools, carriages, and other apparatus described, together with the properties, modes of preparing and of employing all kinds of materials used in building. They likewise have treated of the nature of soils, and the manner of laying foundations, of raising

* Architettura di Andrea Palladio (*a*). Architettura Universale di Vincenzo Scamozzi (*b*). Archi. di Sebastiano Serlio (*c*). Leo. Bap. Alberti de Re Æditicatoriâ (*d.*) Architecture de Philibert de Lorme (*e*). Secrets d'Architecture, and l'Art de Charpenterie de Mathieu Jousse (*f*). Felibien principes de l'Architecture, &c. (*g*). La Pratique du trait par Desargues (*h*). Belidor Sciences des Ingenieurs, and Architecture Hydraulique (*i*). Gautier traité des Ponts et des Chaussées (*k*). Blondel Cours d'Architecture (*l*).

(*a*) Palladio (Andrea). I Quattro Libri dell' Architettura, 1st Edit. Venetia, fol. 1575; 2nd Edit. ibid. 1581; 3rd Edit. ibid. 1601. There is a modern spurious edition, which it will be sufficiently easy upon inspection to detect. The principal Translations into English are by Ware and Leoni, both in folio. The latter has Inigo Jones's Notes on the author: of this there are two editions, one of which does not carry the Notes in question, though the title-page states the contrary. The proper edition of the latter is in folio, Lond. 1742. The portrait of Palladio is an imposition in both. The buildings of Palladio by Ottavio Bertotti Scamozzi, in 4 vols. folio, Vicenza, 1776-83, with a 5th vol. containing Lord Burlington's publication of the Roman baths, Lond. 1730, should be in the library of every architect.—[Ed.]

(*b*) Scamozzi (Vincenzo) Idea dell'Architettura, 2 vols. folio, Venezia, 1615; a reprint of this edition appeared, folio, Piazzola, 1687. Scamozzi's Works have been translated into French by D'Aviler and Dury, folio, La Haye, 1736; the edition of 1713, Leyden, which professes to be the work of Scamozzi, has no relation to the above work.—[Ed.]

(*c*) Serlio (Sebastiano) l'Architettura di, 4to. Vicenza, 1584; Venetia, 1619, both good editions.—[Ed.]

(*d*) Alberti (Leo. Bapt.) Libri de re ædificatoriâ decem, 1st edition, Florence, 1485, folio; reprinted in 4to. Paris, 1512. Translated into Italian by Peter Lauro, small 4to. Venice, 1546; by Cosimo Bartoli, folio, Florence, 1550; and into English by Leoni, folio, Lond. 1726—1755, and Bologna, 1782.—[Ed.]

(*e*) Lorme (Philibert de) Œuvres d'Architecture, folio, 2 vols. in 1. Paris, 1626, or Rouen, 1648. The first edition, the Treatise on Architecture, in 9 books, was published in Paris, 1567. The 10th book, on Carpentry, entitled, "Nouvelle Invention pour bien bâtir, et à petit frais," was published in folio, Paris, 1561, 1568, 1576.—[Ed.]

(*f*) Jousse (Math.) Secrets d'Architecture, folio, 1642. The Art of Carpentry, &c., by this author was corrected and augmented by De la Hire, folio, Paris, 1751.—[Ed.]

(*g*) Felibien. Les Principes de l'Architecture, de la Sculpture, et de la Peinture. 4to. Paris, 1699.—[Ed.]

(*h*) Published by Abraham Bosse, in 1643. The title of the work, which is in 1 vol. 8vo. is, "Système de Desargues sur la pratique du trait à preuve pour la coupe des pierres."—[Ed.]

(*i*) Belidor (Bern.) "Architecture hydraulique, ou l'art de conduire, d'élever et de ménager les eaux pour les differens besoins de la vie," 4 vols. 4to. Paris, 1737—53. There was another edition, 1780, of which copies are to be found, with a new title-page, bearing the name of Didot, and with some new plates. The last edition by Navier, 4 vols. 4to. 1819, published by Didot, contains some additions.

"La Science des Ingenieurs dans la conduite des travaux de fortification et d'architecture militaire," 4to. Paris, 1729 and 1749; a new edition was published in 1814, with the notes of Navier.—[Ed.]

(*k*) Gautier (H.) Traité de la construction des ponts et chaussées, 8vo. Paris, 1721—65.

(*l*) Blondel. There are two of this name, uncle (Francois) and nephew (Jacques Franc.) both of whom published a "Cours d'Architecture;" the former in 5 vols. folio, Paris, 1675 and 1698; the latter 9 vols. 8vo. Paris, 1771: but the second part of the last-mentioned work, published 1773, is imperfect, owing to the death of the author.—[Ed.]

superstructures, and of every other particular having relation to the mechanic arts connected with building.

These books,* the structures above mentioned, and many others to be found in England or elsewhere, are the schools from which the architect must collect the rudiments of construction, but practice, experience, and attentive observation are requisite to render him consummately skilled in this important part of his profession.†

Architecture des Voûtes par Derrand (*m*). De la Rue Traité de la Coupe des Pierres (*n*). Evelyn's Silva (*o*). Wotton's Remains (*p*). Zabaglia Opere (*q*). Price's British Carpenter (*r*). Savot Archi. Francoise (*s*). Neve's Builder's Dictionary (*t*). Frezier Coupe des Pierres (*u*) (with the translations in English, French, or Italian, of those that are translated); and many others of less note.

* See note p. 95.

† The number of works on architecture which have issued from the presses of the Continent leaves the student no reason to complain of the want of theoretical or practical treatises on his art.

A few may be named as worthy a place in the architect's library :—

Article "Architecture" of the Encyclopédie Méthodique, by Quat. de Quincy, 4 Parts, already published, 4to. Paris, 1788—1820.

"Traité theorique et pratique de l'art de bâtir," par M. Rondelet, architecte, 8vo. 4 vols. Paris.

"Traité de la Construction des Ponts, suivi de divers Memoires concernant les Canaux de Navigation," par Gauthey, 3 vols. 4to. Paris, 1809—16.

"Memoires sur les objets les plus importans d'Architecture," par M. Patte, 4to. Paris, 1769.

"Architecture considérée sous le rapport de l'Art, des Mœurs, et de la Legislation," par C. N. Ledoux, folio, Paris, 1804.

"Plans, Coupes, Elevations de diverses Productions de l'Art de la Charpente," par Krafft, Paris, 1805.

And many others.—[Ed.]

(*m*) Derrand (Fr.) "L'Architecture des Voûtes, ou l'art des traits et coupe des voûtes." Folio, Paris, 1642 and 1742.—[Ed.]

(*n*) De la Rue (J. B.) "Traité de la Coupe des Pierres, ou par une methode facile et abregée, l'on peut aisément se perfectionner en cette science." Folio, Paris, 1728.—[Ed.]

(*o*) Evelyn's (John) "Sylva," best edition, by Dr. Hunter, 2 vols. 4to. York, 1786.—[Ed.]

(*p*) Wotton's (Sir Henry) "Remains." It is singular that the author should have alluded to this copy (12mo.) of the "Elements of Architecture," which was edited by old Izaak Walton, in the Reliquiæ Wottonianæ, because the treatise was published by itself in 4to. London, 1624.—[Ed.]

(*q*) Zabaglia (Nic.) "Castelli e Ponti con alcune ingeniose pratiche e con la descrizione del transporto dell' obelisco Vaticano e di altri, del Dom. Fontana." Folio, Roma, 1743. The Latin title is "Contignationes ac Pontes."—[Ed.]

(*r*) Price's (Francis) "The British Carpenter: or a Treatise on Carpentry," &c. Several editions: the 4th is the best. 4to. London, 1759.—[Ed.]

(*s*) Savot (Louis) L'Architecture Francoise des Bâtimens particuliers, 8vo. Paris, 1685.—[Ed.]

(*t*) Neve's "City and Countrey Purchaser and Builder's Dictionary: or the Compleat Builder's Guide." There are two editions of this book, both 8vo. The first, Lond. 1703, by T. N. Philomath. The other, Lond. 1726, by Richard Neve Philomath: the latter is the better book, though not the most curious.—[Ed.]

(*u*) "Frezier (Amédée Fr.) Traité de Stereotomie, ou la theorie et la pratique de la Coupe des Pierres et des Bois," Strasburg, 1738, or 3 vols. 4to. Paris, 1754.—An abridgment of this work under the title of "Elemens de Stereotomie," was published 1759.—[Ed.]

The architect's aim being, as has been observed, to erect handsome, strong, convenient, salubrious, and comfortable edifices, to ascertain their value, and to build them with safety, ease, and frugality, the principles of his art may be ranged under four distinct heads, which are — distribution, construction, decoration, and economy.

Of construction and decoration, it has been shown whence his knowledge should be collected; and of distribution, which comprehends all particulars relative to health, convenience, comfort, pleasure and profit, the artist may collect his general idea from books or observations made upon buildings erected for various purposes, in different climates and ages; but it is only by practice that he can become expert in discovering the advantages or defects of situation, the nature of climates or expositions, the qualities of air, water, soil, and many other things necessary to be known, and it is only by a thorough acquaintance with the customs and modes of living of his own times, and with the dispositions, amusements, occupations, and duties of his contemporaries that he can effectually learn how to supply their wants or gratify their wishes.

In countries where general custom governs most things, and where all persons of the same rank think, act, and live nearly after the same manner, the distributive part of architecture has not so many difficulties; but wherever that is not the case, every new employer opens a fresh field for investigation, and the artist's task is never at an end.

The economy of architecture is of so complicated, so extensive a nature, that it is almost impossible for any man to know it perfectly, much more for an architect, whose mind must be loaded with a great variety of other knowledge. When, therefore, an artist has fixed his abode in any particular country or great city, it will be best to limit his researches at first to that place alone, informing himself of the different quarries, woods, kilns, sea-ports or other markets from whence it is supplied with materials for building, as also of the different natures and degrees of goodness of these materials, the properest times for providing them, the best means of transporting them to the places of their destination, their value, and upon what circumstances that value depends, to the end that he may be enabled at all times to account for the fluctuation of price, and to ascertain what they are justly worth.

The principal difficulty of this inquiry arises, not only from the many causes upon which the value of things and their rise or fall depends, but from the caution with which dealers and tradesmen of almost all denominations, conceal the secrets of their trade, and the real profits they have thereon.

His next step must be to find out all the able artists and artificers of the place and its environs, to form an acquaintance with them, and examine carefully in what branches they particularly excel, how far their skill extends, what their dispositions, circumstances, and tempers are, with their characters and connections, that, by combining these particulars, he may employ their abilities upon every occasion to most advantage, as well for them as for himself.

He must then make diligent inquiry into the usual prices allowed for every sort of labour or workmanship, according to its degree of perfection, how much time and what materials are requisite to produce given quantities thereof, what profits, according to the usage of the place, are allowed thereon to the master workmen, and in what manner it is measured or accounted for when done, that he may be entire master of his subject, and enabled to judge equitably between the employer and employed, as his station requires. These inquiries will at the first be attended with considerable difficulty for the reasons before mentioned, but, like propositions in geometry, one information will facilitate another, and in the course of a few years' practice the artist, if he be industrious and skilfully inquisitive, will have acquired a thorough acquaintance with whatever concerns his own circle, and then he may extend his inquiries to other parts. What is already known will serve as a clue to further knowledge, and, by degrees, he may become a very competent judge of every economical particular in all the provinces of an extensive kingdom.

If in this chapter, or in other parts of the work, for it may be as well to apologize at once for all, the author has ventured to think for himself, and sometimes to start opinions differing from those of other men, he begs leave to say that it proceeds, not from the affectation of being either singular or dogmatical, but from conviction that his notions are always founded in reason or proved by well attested facts, and delivered with a wish to guide the reader right. All that has been said respecting the superiority of the Roman architecture was written a considerable time ago, when the Grecian had been extolled into repute, and structures were erecting in different parts of England after Attic designs. Fortunately, the sight of these first specimens excited no desire for more; after a few ineffectual struggles the Roman manner obtained a complete victory. There seemed, at that time, no further necessity to fight its cause, and these observations, intended for the second edition of this work, were then suppressed. But latterly the Gusto Greco has again ventured to peep forth,

and once more threaten an invasion.* What therefore was omitted in the second edition it has been judged necessary to insert in this as a caution to stragglers.†

* No one can be insensible to the exquisite beauties of Greek art, nor unmoved by the elegant and captivating arrangement of the Greek Temple. It is in the application of the severer Greek architecture to English religious ceremonies and English habits, without that modification which circumstances and the climate itself seem to require, that the objections arise. Let the reader survey the metropolis, and compare the new churches and other public buildings with the works of Jones, Wren, Burlington, Sir Robert Taylor, and those of our Author, and he will be satisfied that our better acquaintance with Grecian architecture has not generally improved the style of our public edifices.—[Ed.]

† It must be confessed that Chambers' low estimate of Greek architecture does not say much for either his sensibility as artist, or his liberal-mindedness as critic. Others have since erred in the opposite extreme, depreciating Roman as being little better than sadly degenerate Greek, without taking any account of its positive merits. Both the one and the other have their short-comings, yet both are now to be studied for their respective excellencies, with a praiseworthy disregard of that pedantic truthfulness to precedent, or express pattern, which in the eyes of the uninitiated looks very much like lazy, mechanical copyism. As known to us, Greek architecture is altogether insufficient now for actual application without the admixture of some alloy, which need not, however, prevent the metal, or *ensemble*, produced by the fusion together of originally quite distinct elements, from becoming a homogeneous mass. Possible, it surely is, to add to Roman grandeur Attic grace, and not stopping there, or at Renaissance and After-Renaissance and Anglo-Classic, to go on advancing in the same direction. The architect ought to take warning from the fate of Lot's wife, who, by looking backwards, was petrified into purity by being converted into a pillar of salt. He should, on the contrary, be a Janus, capable of clearly discerning what lies before him as well as what lies behind.—[W. H. L.]

OF THE PARTS WHICH COMPOSE THE ORDERS OF ARCHITECTURE, AND OF THEIR PROPERTIES, APPLICATION, AND ENRICHMENTS.

As in many other arts so in architecture, there are certain elementary forms which, though simple in their nature and few in number, are the principal constituent objects [elements] of every composition, however complicated or extensive it may be.

Of these there are in our art two distinct sorts, the first consisting of such parts as represent those that were essentially necessary in the construction of the primitive huts, as the shaft of the column with the plinth of its base, and the abacus of its capital, representing the upright trees, with the stones used to raise and to cover them. Likewise the architrave and triglyph representing the beams and joists, the mutules, modillions, and dentils, either representing the rafters or some other pieces of timber employed to support the covering, and the corona representing the beds of materials which composed the covering itself. All these are properly distinguished by the appellation of essential parts, and form the first class. The subservient members contrived for the use and ornament of these, and intended either to support, to shelter, or to unite them gracefully together, which are usually called mouldings, constitute the second class.

The essential parts were most probably the only ones employed even in the first stone buildings, as may be collected from some ancient structures yet remaining: for the architects of those early times had certainly very imperfect ideas of beauty in the productions of art, and therefore contented themselves with barely imitating the rude model before them; but coming in time to compare the works of their own hands with animal and vegetable productions, each species of which is composed of a great diversity of forms, affording an inexhaustible fund of amusement to the mind, they could not but conceive a disgust at the frequent repetition of square figures in their buildings, and therefore thought of introducing certain intermediate parts, which might seem to be of some use, and at the same time be so formed as to give a more varied pleasing appearance to the whole composition; and this, in all probability, was the origin of mouldings.

Published by the Proprietors of the Building News 1860

SIR WILLIAM CHAMBERS' TREATISE.

Printed from Stone by C. F. Cheffins & Son, London

Of regular mouldings there are eight;* which are, the Ovolo,† the Talon,‡ the Cyma§, the Cavetto,‖ the Torus,¶ the Astragal,** the Scotia,†† and the Fillet.‡‡

* See plate of regular mouldings.
† Ovolo, or Echinus, or quarter round (*a*).
‡ Talon or Ogee, or reversed Cyma (*b*).
§ Cyma, Cyma Recta, Cymatium (*c*).
‖ Cavetto, or mouth, or hollow.
¶ Torus or Tore (*d*).
** Astragal (*e*), Bead, or Baguette.
†† Scotia or Trochilos (*f*).
‡‡ Fillet, Listel, Annulet.

(*a*) *Echinus*—"It is indeed a quarter round, and sometimes more, swelling above the *cinctures*, and commonly next to the *abacus*, carved with *ovals* and *darts* (by our workmen called *eggs* and *anchers* as little politely), which is frequently shut up with a smaller *ovolo* of *beads* and *chaplets*, or like ornament; but so adorned, it commonly runs under the *Ionic voluta*, and that of the *composita*, and next the *Doric abacus*, as in that singular example of the *Trajan Column* it creeps under the *plinth* of the *capital*. Such as pretend to *etymologies* for everything they hear, will have it ἐχῖνος, παρὰ τὸ ἔχειν, or συνέχειν ἑαυτὸν, because of a kind of self-contraction; others more rationally from the resemblance and roughness in the carving, ἐχίνου τραχύτερος, as bristling with darts like a *hedgehog*, or rather the thorny husk of a *chestnut*, which being opened discovers a kind of oval-figured kernel, which dented a little at the top the *Latins* call *decacuminata ova*." "In the *Corinthian* an *echinus* frequently comes in between the *corona* and *dentilli*." An Account of Architects and Architecture, &c., by John Evelyn, Esq., Fellow of the Royal Society, Folio, 1696, p. 21.—[Ed.]

(*b*) "*Cymatium* inverted, which is no more than a wrought or plain *ogee* as our workmen barbarously name it. The term is κυμάτιον, *undula*, and signifies a *rolling wave*, to the resemblance whereof it is moulded. By some it is called the *throat*, as from the *Italian* and *French*, *gola*, *guenle*, or *doucine*, and of these there are *two* kinds, the *first* and principal hath always its cavity *above*, and doth constantly jet over the *corona* or *drip* like a *wave* ready to fall, and then is properly called *sima*," "the *other* has its hollow below, and is named *inversa*, the one *convex* the other *concave*. The letters { thus placed do reasonably well express these kind of *mouldings*." An Account of Architects and Architecture, &c., by John Evelyn, Esq., Fellow of the Royal Society, Fol. 1696, page 30.—[Ed.]

(*c*) *Cyma*—see preceding Note.—[Ed.]

(*d*) *Torus* "from τόρος, denoting the roundness and smoothness of it. *Torus enim quicquid rotundum*; or rather as *Scaliger*, *quod artificialiter elaboratur & tornetur*, because artificially made so; but why not from its swelling and brawniness? It much resembles the shape of a round cushion." &c. Ibid. page 18.—[Ed.]

(*e*) "*Astragal*, which besides other things, as the *septem spinæ vertebræ* near the neck, has here its analogy from that bone a little above the *heel*," &c. Ibid, page 18.—[Ed.]

(*f*) "*Trochile*, from τρέχω or τρόχα, a rundle or pulley-wheel, which it much resembles, and is that cavity appearing next to the *torus*: The *Italians* name it *bastone*, or more properly *cavetto*, and *cortice tanquam baculi cortex*, the hollow rind of a tree, as *barbaro*. Our workmen retain the ancient *scotia*, from Σκοτία, its obscurity proceeding from the shade of the hollowness, but more vulgarly they call it the *casement*," &c. Ibid. p. 18.

It is singular that Sir William should have omitted to notice the situations which the several mouldings should and should not occupy.

For instance—The Ovolo should be used only above the level of the eye of the spectator.

The Cavetto must not be seen in bases or capitals.

The Cyma Recta only to be used in crowning members, though in Palladio's Doric, and other examples, it is found occasionally in the bed mouldings under the corona.

The Scotia always below the eye, and always between the fillets attached to Tori.

The Fillet at all heights, and in most situations.—[Ed.]

The names of these are allusive to their forms; and their forms are adapted to the uses which they are intended to serve. The ovolo and talon, being strong at their extremities, are fit for supports. The cyma and cavetto, though improper for that purpose, as they are weak in the extreme parts, and terminate in a point, are well contrived for coverings to shelter other members: the tendency of their outline being very opposite to the direction of falling water, which for that reason, cannot glide along their surface, but must necessarily drop. The torus and astragal, shaped like ropes, are intended to bind and strengthen the parts on which they are employed; and the use of the fillet and scotia, is only to separate, contrast and strengthen the effect of other mouldings, to give a graceful turn to the profile, and to prevent that confusion which would be occasioned by joining several convex members together.

That the inventors of these forms meant to express something by their different figures, will scarcely be denied; and that the above-mentioned were their destinations, may be deduced, not only from their figures, but from the practice of the ancients in their most esteemed works: for if we examine the Pantheon, the three columns in the Campo Vaccino, the temple of Jupiter Tonans, the fragments of the frontispiece of Nero, the basilica of Antoninus, the forum of Nerva, the arches of Titus and Septimus Severus, the theatre of Marcellus, and indeed almost every ancient building, either at Rome or in other parts of Italy and France, it will be found, that in all their profiles, the cyma and the cavetto are constantly used as finishings, and never applied where strength is required: that the ovolo and talon are always employed as supporters to the essential members of the composition, such as the modillions, dentils, and corona; that the chief use of the torus and astragal is to fortify the tops and bottoms of columns, and sometimes of pedestals, where they are frequently cut in the form of ropes, as on the Trajan column,* in the Temple of Concord, and on several fragments which I have seen, both at Rome and at Nismes in Languedoc; and that the scotia is employed only to separate the members of bases, for which purpose the fillet is likewise used, not only in bases, but in all kinds of profiles

Hence it may be inferred, that there is something positive and natural in these primary forms of architecture, and consequently in the parts which they compose: and that Palladio erred in employing the cavetto under the corona, in three of his orders, and in making such frequent use through all his

* The author seems to have forgotten that the Torus of the Trajan column is decorated with laurel leaves bound with bands at certain intervals, and by no means bearing any resemblance to a rope.—[Ed.]

profiles of the cyma, as a supporting member. Nor has Vignola been more judicious in finishing his Tuscan cornice with an ovolo; a moulding extremely improper for that purpose, and productive of a very disagreeable effect; for it gives a mutilated air to the whole profile, so much the more striking, as it resembles exactly that half of the Ionic cornice which is under the corona. Other architects have been guilty of the like improprieties, and are therefore equally reprehensible.*

There are various manners of describing the contour or outline of mouldings: the simplest, however, and the best, is to form them of quadrants of circles,† as in the annexed designs; by which means the different depressions and swellings will be more strongly marked, the transitions be made without any angle, and the projections be agreeable to the doctrine of Vitruvius and the practice of the ancients: those of the ovolo, talon, cyma, and cavetto, being equal to their height, that of the scotia to one-third, and those of the curved parts of the torus and astragal to one-half thereof.

On particular occasions, however, it may be necessary sometimes to increase, and at other times to diminish these projections, according to the situation, or other circumstances attending the profile, as will hereafter appear. And whenever it so happens, the ovolo, talon, cyma and cavetto, may either be described from the summits of equilateral triangles, or be composed of quadrants of the ellipsis; of which the latter should be preferred, as it produces a stronger opposition of light and shade, and by that means marks the forms more distinctly. The scotia may likewise be framed of elliptical portions, or quadrants of the circle, differing more or less from each other, than in the annexed designs;‡ by which means its projection may either be increased or diminished; but the curved part of the torus and astragal must always be semicircular, and the increase in their projection be made by straight lines.

In some antiques, and likewise in various modern buildings, where the parts are far removed from the eye, or where, from the extraordinary size of the structure, it has not been practicable to give to every member its due projection, recourse has been had to artifice, in order to produce the desired effect. At St. Peter's of the Vatican, this practice is very frequent; and I

* All sense in the application of appropriate forms in mouldings seems now extinct, and Palladio set at defiance. He who can in the present day produce the newest and most extraordinary moulding in profiling an order is the greatest genius.

† Pl. Mouldings.

‡ Pl. Mouldings.

have given a section of the cornice,* terminating the pendentives of the dome, which may serve as a guide, in cases where the like is necessary.

It will however be proper to observe, that a frequent use of this expedient is to be avoided; as the artifice never succeeds, but where, by reason of the great distance, it is undiscoverable: for the incisions and contortions made in the mouldings, entirely destroy the natural beauty of their form.

Certain of the modern Italians, and likewise some of our own learned virtuosi, who eagerly grasp at every innovation, having observed these forms in the works of Michael Angelo, and in some of the temples of antiquity, without sufficiently considering why they were there introduced, have very injudiciously made use of them all in their own works; by which practice, their compositions, though having in other respects a certain degree of merit, are, in this particular, highly censurable.

An assemblage of essential parts and mouldings, is termed a profile; and on the choice, disposition, and proportions of these, depend the beauty or deformity of the composition. The most perfect profiles are such as consist of few mouldings, varied both in form and size, fitly applied, with regard to their uses, and so distributed, that the straight and curved ones succeed each other alternately. In every profile, there should be a predominant member, to which all the others ought to seem subservient, and made either to support, to fortify, or to shelter it from injuries of weather; and whenever the profile is considerable, or much complicated, the predominant should always be accompanied with one or more other principal members, in form and dimension calculated to attract the eye, create momentary pauses, and assist the perception of the beholder. These predominant and principal members ought always to be of the essential class, and generally rectangular. Thus in a cornice, the corona predominates; the modillions and dentils are principals in the composition, the cyma and cavetto cover them, the ovolo and talon support them.

When ornaments are employed to decorate a profile, some of the mouldings should always be left plain, in order to form a proper repose: for when all are enriched, the figure of the profile is lost in confusion. In an entablature, the corona should not be ornamented, nor the modillion band, nor the different fascias of the architrave: neither should the plinths of columns, fillets, nor scarcely any square members be carved, for generally speaking, they are either principal in the composition, or used as boundaries to other

* Pl. Mouldings, Fig. 1.

parts; in both which cases, their figures should be simple, distinct, and unembarrassed. The dentil band should remain uncut, where the Ovolo and Talon immediately above and below it are enriched; as in the Pantheon at Rome, and at St. Paul's in London. For when the dentils are marked; particularly if they be small, according to Palladio's Corinthian design; the three members are confounded together, and being covered with ornaments, become far too rich for the remainder of the composition: which are defects at all times studiously to be avoided, as a distinct outline, and an equal distribution of enrichments, must, on every occasion, strictly be attended to.

Scamozzi observes,* that ornaments should neither be too frugally employed, nor distributed with too much profusion; their value will increase in proportion to the judgment and discretion shown in their application. For, in effect, says he, the ornaments of sculpture used in architecture, are like diamonds in a female dress, with which it would be absurd to cover the face, or other principal parts, either in themselves beautiful, or appearing with greater propriety in their natural state.

Variety in ornaments must not be carried to an excess. In architecture they are only accessories, and therefore they should not be too striking, nor capable of long detaining the attention from the main object. Those of the mouldings in particular, should be simple, uniform, and never composed of more than two different representations upon each moulding, which ought to be cut equally deep, be formed of the same number of parts, all nearly of the same dimensions, in order to produce one even, uninterrupted hue throughout; that so the eye may not be more strongly attracted by any particular part than by the whole composition.

When mouldings of the same form and size are employed in one profile, they should be enriched with the same kind of ornaments; by which means, the figure of the profile will be better apprehended, and the artist will avoid

* Parte Seconda, Libro vi. c. 3. "Inoltre gli ornamenti non si deono porre, nè profusi, nè troppo abbondanti, nè meno scarsamente, nè con alcuna avaritia: perciò allhora saranno lodati, quando si metteranno con giudicio, e temperatamente, e sopra tutto di bellissime forme, e con esatissime proportioni, così nelle loro parti, come nelle membra particolari: essendo gli ornamenti, che si pongono nelle parti de gli edifici à punto come le gioie, con le quali si sogliono adornare i Principi, e le Principesse, i gran Signori, e Dame; poiche quelle non si lodano à ragione, che sono disposte nelle parti naturali gratiose, e belle: onde vediamo, che non si adorna giamai nè le guancie, nè il petto, nè simiglianti luoghi." Piazzola, Edit. Fol. 1687.

Vincenzo Scamozzi, an architect of great talent, was born at Vicenza, 1550. He was educated in his profession by his father, and at Palladio's death succeeded to the chief employments in the above city. His publications were "L'Idea dell' Architettura Universale," 2 vols. Fol. 1615, reprinted in 1687; and "Discorsi sopra le antichità di Roma," 1583. Fol. He must not be confounded with another person, who took the same surname, for reasons which the reader will find in Milizia's Lives of the Architects, and who was the Editor of Palladio's Buildings, 4 vols. Fol.—[Ed].

the imputation of a puerile minuteness, neither much to his own credit nor of any advantage to his works.

It must be observed, that all ornaments of mouldings are to be regularly disposed, answering perpendicularly above each other, as at the three columns in the Campo Vaccino, where the middles of the modillions, dentils, eggs, and other ornaments, are all in one perpendicular line. For nothing is more careless, confused and unseemly, than to distribute them without any order, as they are in many of the antiques, and in most of the buildings of this metropolis: the middle of an egg answers in some places to the edge of a dentil, in some to its middle, and in others to the interval; all the rest of the ornaments being distributed in the same slovenly, artless manner. The larger parts must regulate the smaller: all the ornaments in the entablature are to be governed by the modillions, or mutules; and the distribution of these must depend on the intervals of the columns, and be so disposed, that one of them may come directly over the axis of each column. It is further to be observed, that the ornaments must partake of the character of the order they enrich. Those used in the Doric and Ionic orders, are to be of simpler forms, and of larger bulk, than those employed in the Composite or Corinthian.

When friezes or other large members are to be enriched, the ornaments may be significant, and serve to indicate the destination or use of the building; the rank, qualities, profession and achievements of the owner: but it is a foolish practice to crowd every part with arms, crests, cyphers, and mottoes; for the figures of these things are generally bad, or vulgar, and their introduction betrays an unbecoming vanity in the master of the fabric. Hogarth has humorously ridiculed this practice, by decorating a nobleman's crutch with a coronet.

In sacred places, all obscene, grotesque, and heathenish representations ought to be avoided: for indecent fables, extravagant conceits, or instruments and symbols of Pagan worship, are very improper ornaments in structures consecrated to Christian devotion.

With regard to the manner of executing ornaments, it is to be remembered, that as in sculpture a drapery is not estimable unless its folds are contrived to grace and indicate the parts and articulations of the body it covers, so in architecture the most exquisite ornaments lose all their value, if they load, alter, or confuse the form they are designed to enrich and adorn.

All ornaments of mouldings must therefore be cut into the solid,* and

* One of the most delightful examples in verification of this sound principle, is the capital of the order used in the circular temple at Tivoli, in which the leaves, instead of being *appliqués* to the bell of the capital, are absolutely cut out of it. The effect is wonderful as well as pleasing.—[Ed.]

never be applied on their surface, as D'Aviler erroneously teaches, because it alters both their figure and proportion. The profile must first be finished plain, and afterwards be adorned, the most prominent parts of the ornaments being made equal with the surface of the mouldings they enrich; and great care must be taken that the angles, or breaks, be kept perfect and untouched with sculpture; for which reason it is customary at the angles of most mouldings, to place water leaves, or other plain leaves, the middle filament of which forms the angle, and keeps its outline entire.

The method of the ancient sculptors, in the execution of architectonic ornaments, was to aim at a perfect representation of the object they chose to imitate; so that the chestnuts, acorns, or eggs, with which the ovolo is commonly enriched, are in the antiques, cut round, and almost entirely detached; as are likewise the berries, or beads on the astragal, which are generally as much hollowed into the solid of the body, as the moulding projects beyond it: but the leaves, shells, and flowers, that adorn the cavetto, cyma, talon, and torus, are kept flat, like the things they represent.

In the application of their ornaments, they observed to use such as required a considerable relief, on mouldings that in themselves are clumsy, as the ovolo and astragal; which by means of the deep incisions made in them to form these enrichments, acquired an extraordinary lightness; but on more elegant parts, as the cavètto and cyma, they employed thin bodies, which could be represented without entering too far into the solid. The ornaments of their cornices were boldly marked, that they might be distinguished from afar; but those of the bases of columns, or of pedestals, being nearer the eye, were more slightly expressed; as well on that account as because it would have been improper to weaken these parts, and impossible to keep them clean, had there been any deep cavities in them to harbour dust and filth.

When objects are near and liable to close inspection, every part of the ornament should be expressed and well finished; but when they are much exalted the detail may be slightly touched or entirely neglected; for it is sufficient if the general form be distinct and the principal masses strongly marked. A few rough strokes from the hand of a skilful master are much more effectual than the most elaborate finishings of an artless imitator which, seldom consisting in more than smoothing and neatly rounding off the parts, are calculated to destroy rather than to produce effect.

OF THE ORDERS OF ARCHITECTURE IN GENERAL.

The orders of Architecture, as has been observed, are the basis upon which the whole decorative part of the art is chiefly built, and towards which the attention of the artist must ever be directed, even where no orders are introduced. In them originate most of the forms used in decoration; they regulate most of the proportions; and to their combination, multiplied, varied, and arranged in a thousand different ways, architecture is indebted for its most splendid productions.

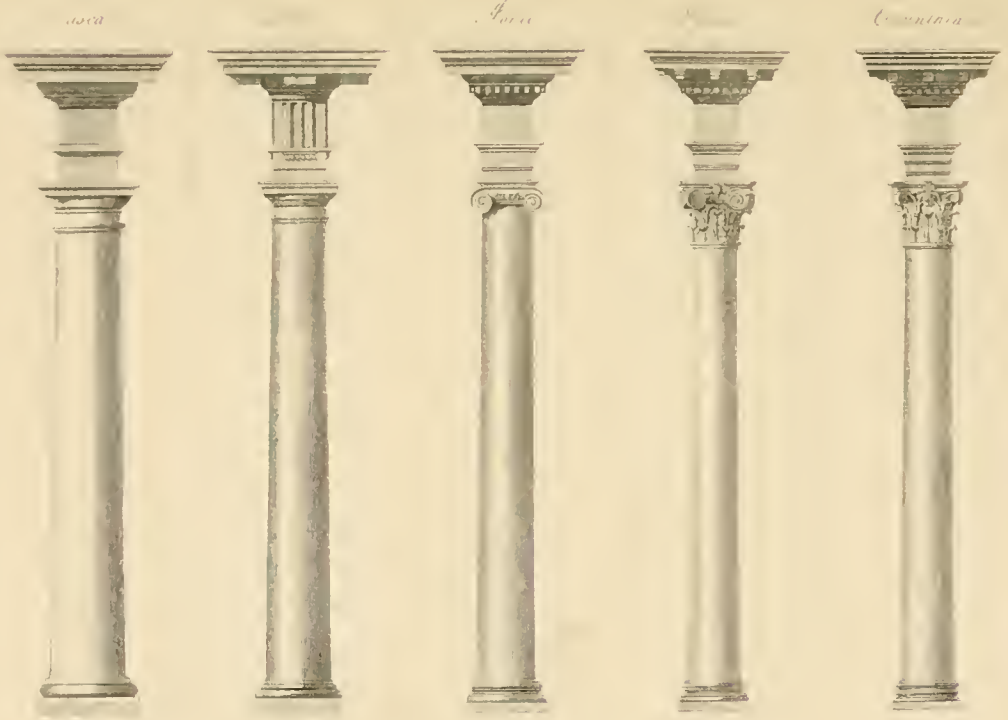
These orders are different modes of building, said originally to have been imitated from the primitive huts, being composed of such parts as were essential in their construction, and afterwards also in the temples of antiquity, which, though at first simple and rude, were in the course of time, and by the ingenuity of succeeding architects, wrought up and improved to such a pitch of perfection that they were, by way of excellence, distinguished by the name of orders.

Of these there are five:* three, said to be of Grecian origin, are called Grecian orders, being distinguished by the names of Doric, Ionic, and Corinthian; they exhibit three distinct characters of composition, supposed to have been suggested by the diversity of character in the human frame. The remaining two being of Italian origin, are called Latin orders; they are distinguished by the names of Tuscan and Roman, and were probably invented with a view of extending the characteristic bounds on one side still further towards strength and simplicity, as on the other towards elegance and profusion of enrichments.

At what time the orders were invented, or by whom improved to the utmost, remains at least doubtful. Of their improvement we can now only judge from the structures and fragments of antiquity, built in different ages, and still remaining to be seen in various parts of Europe, Asia, and Africa. And of their origin little is known but from the relation of Vitruvius†, the

* Pl. Orders.

† Lib. iv. c. 1. For a learned and impartial examination of the account given by Vitruvius relating to the origin of the Grecian Orders of Architecture, which it is much regretted would exceed the limits of a note, the student is most particularly recommended to the perusal of Goguet, "L'Origine des Lois, des Arts, et des Sciences." 2e Epoque, Livre ii. and 3e Epoque, Livre ii.—See also page 30 *suprà*.—[Ed.]



Published by the Proprietors of the Building News 1860

SIR WILLIAM CHAMBERS' TREATISE.

Printed from Stone by C F Cheffins & Son London

veracity of which has been much questioned, and is probably not much to be depended upon.

"Dorus," says he, "son of Hellen and the nymph Orseis*, king of Achaia and of all the Peloponnesus, having formerly built a temple to Juno, in the ancient city of Argos, this temple happened to be in the manner which is called Doric, and was afterwards imitated in many others built in the several cities of Achaia.

"About the same time the Athenians, after having consulted the oracle of Apollo at Delphi, by the common consent of all Greece, sent into Asia thirteen colonies, each under the command of a separate captain, but all under the general direction of Ion, son of Xuthus and Creusa. Ion being arrived in Asia, conquered all Caria, and founded thirteen large cities, the inhabitants whereof, having expelled the Carians and Lelegæ, called the country Ionia, in honour of Ion, their leader, and erected temples, of which the first, dedicated to Apollo Panionius, was built after the manner of those they had seen in Achaia, which they called Doric, because temples of the same sort had been erected in the cities of the Dorians.

"But some time after, building a temple to Diana, different from these, and of a more delicate structure, being formed upon the proportions of a female body, as the Doric had been on those of a robust man, and adorning the capitals of their columns with volutes, to represent the curls of a woman's hair, and the shafts with flutings, to express the folds of her garment; they gave to this second manner of building the name of Ionic, because it was invented and first used by the Ionians.

"The third sort of columns, which are called Corinthian, and represent the delicate figure of a young girl, owe their birth to the following accident.

"A young woman of Corinth being dead†, her nurse placed on her tomb a basket containing certain trinkets in which she delighted when alive, covering it with a tile, to shelter them from the weather. The basket happened accidentally to be set on a root of an acanthus, which pushing forth its leaves and sprigs in the spring, covered the sides of it, and some of them, longer than the rest, being obstructed by the angles of the tile, were forced downwards, and by degrees curled into the form of volutes.

"Callimachus, a celebrated sculptor, passing near the tomb, observed the basket, and in how graceful a manner the leaves of the acanthus had sur-

* Chambers has it Optica, which he seems to have adopted without consulting Philander's note *in loco*.—[Ed.]

† Pl. Primitive Buildings.

rounded it; the form pleased him exceedingly, he imitated it on the tops of some columns, which he afterwards executed at Corinth, establishing and regulating, by this model, the manner and proportions of the Corinthian order*."

Of the two Latin orders, the Tuscan is said to have been invented by the inhabitants of Tuscany before the Romans had intercourse with the Greeks, or were acquainted with their arts, whence it is called Tuscan. Probably, however, these people, originally a colony of Greeks, only imitated in the best manner they could what they remembered in their own country, simplifying the Doric, either to expedite their work, or perhaps to adapt it to the abilities of their workmen.

The second Latin order, though of Roman production, is but of modern adoption, the ancients never having considered it as a distinct order. It is a mixture of the Ionic and Corinthian, and is now distinguished by the names of Roman, or Composite.

The ingenuity of man has hitherto not been able to produce a sixth order, though large premiums have been offered, and numerous attempts been made by men of first-rate talents to accomplish it. Such is the fettered human imagination, such the scanty store of its ideas, that Doric, Ionic and Corinthian have ever floated uppermost, and all that has ever been produced amounts to nothing more than different arrangements and combinations of their parts, with some trifling deviations scarcely deserving notice, the whole generally tending more to diminish than to increase the beauty of the ancient orders.

The substitution of cocks†, owls, or lions' heads, &c., for roses, of trophies, cornucopias, lilies, sphinxes, or even men, women and children for volutes, the introduction of feathers, lyres, flower de luces, or coronets for leaves, are more alterations than improvements; and the suspension of festoons of flowers, or collars of knighthood, over the other enrichments of a capital, like lace on embroidery, rather tends to complicate and confuse the form than to augment its grace or contribute to its excellence.

The suppression of parts of the ancient orders, with a view to produce novelty, has of late years been practised among us with full as little success. And though it is not wished to restrain sallies of imagination, nor to discourage

* The capitals of many of the Egyptian columns furnish a much more probable origin of the Corinthian capital, even to the invention of the volute. See plates 32, 34, 44 and 45 in Denon's work.—The story is so very pretty that one regrets to have the charge of undermining it. See also Introductory Essay on Grecian Architecture, page 15.—[Ed.]

† Pl. Composite Entablatures and Capitals.

genius from attempting to invent, yet it is apprehended that attempts to alter the primary forms invented by the ancients, and established by the concurring approbation of many ages, must ever be attended with dangerous consequences, must always be difficult, and seldom, if ever, successful. It is like coining words, which, whatever may be their value, are at first but ill received, and must have the sanction of time to secure them a current reception.

An order is composed of two principal members,* the column and the entablature, each of which is divided into three principal parts.† Those of the column are the base, the shaft, and the capital; those of the entablature are the architrave, the frieze, and the cornice. All these are again subdivided into many smaller parts, the disposition, number, forms and dimensions of which characterise each order, and express the degree of strength or delicacy, richness or simplicity, peculiar to it.

The simplest and most solid of all is the Tuscan.‡ It is composed of few and large parts, devoid of ornaments, and is of a construction so massive that it seems capable of supporting the heaviest burdens; whence it is by Sir H. Wotton,§ compared to a sturdy labourer dressed in homely apparel.

The Doric order,‖ next in strength to the Tuscan, and of a grave, robust, masculine aspect,¶ is by Scamozzi, called the Herculean.** Being the most ancient of all the orders, it retains more of the structure†† of the primitive huts in its form than any of the rest, having triglyphs in the frieze to represent the ends of joists and mutules in its cornice, to represent rafters with inclined soffits, to express their direction in the originals, from which they were imitated. Its column, too, is often seen in ancient works, executed without a base, in imitation of the trees used in the first buildings, without any plinths

* Pl. of Primitive Buildings.

† Ibid.

‡ Pl. of Orders.

§ "First, therefore, the Tuscan is a plain, massie, rurall Pillar, resembling some sturdy well-limb'd Labourer, homely clad, in which kinde of comparisons, Vitruvius himself seemeth to take pleasure. Lib. iv. cap. 1."—Elements of Architecture.—[Ed.]

‖ Pl. of Orders.

¶ "The *Dorique order* is the gravest that hath been received into civill use, preserving, in comparison of those that follow, a more *masculine aspect*, and little trimmer than the *Tuscan* that went before, save a sober garnishment now and then of *lions' heads* in the *cornice*, and of *triglyphs* and *metopes* always in the *frize*." "To discern him will be a piece rather of good *heraldry* than of *architecture*, for he is best knowne by his place, when he is in company, and by the peculiar ornament of his *frize*, before mentioned, when he is alone."—Elements of Architecture, by Sir Henry Wotton."—[Ed.]

** Parte seconda, lib. vi. c. 10, "L'ordine Dorico, il quale tiene del forte, & Herculeo," &c.—[Ed.]

†† Pl. Primitive Buildings.—[Ed.]

to raise them above the ground. Freart de Chambrai,* speaking of this order, observes that delicate ornaments are repugnant to its characteristic solidity, and that it succeeds best in the simple regularity of its proportions. "Nosegays and garlands of flowers," says he, "grace not a Hercules, who always appears more becomingly with a rough club and lion's skin; for there are beauties of various sorts, and often so dissimilar in their natures that those which may be highly proper on one occasion may be quite the reverse, even ridiculously absurd, on others."

The Ionic,† being the second of the Grecian orders, holds a middle station between the other two, and stands in equipoise between the grave solidity of the Doric and the elegant delicacy of the Corinthian. Among the antiques, however, we find it in different dresses; sometimes plentifully adorned, and inclining most towards the Corinthian; sometimes more simple, and bordering on Doric plainness, all according to the fancy of the architect or nature of the structure where employed. It is throughout of a more slender construction than either of the afore-described orders; its appearance, though simple, is graceful and majestic; its ornaments should be few, rather neat than luxuriant, and as there ought to be nothing exaggerated, or affectedly striking in any of its parts, it is, not unaptly, compared to a sedate matron, rather in decent than magnificent attire.‡

* Roland Freart, Sieur de Chambrai, native of Chambray, a learned architect of the seventeenth century, died in 1676. About 1640 he was employed by Louis XIII. in a mission to the Pope to collect antiquities, and engage the ablest artists to reside in France. Among the latter he brought Poussin to Paris. His works are, a French translation of Da Vinci on Painting, Fol. Paris, 1651, and one of Palladio's Architecture, Paris, 1650. Of this, a fine edition was printed by Nicolas du Bois, at the Hague, in 1726, who has divided the translator into two persons, asserting that Freart published one edition of Palladio, and the Sieur de Chambrai another. Freart's most valuable work was the "Parallèle de l'Architecture antique avec la moderne," Paris, 1650, Fol., reprinted by Erard in 1702. This was translated by Sir John Evelyn, and enriched by him with much additional matter. Bernini was associated with Chambrai in the works at the Louvre, and the following anecdote from Milizia (Memorie degli Architetti antichi e moderni), is as creditable to one as to the other of those architects. "Quando fu in Francia il Bernini il Re incaricò M. de Chambray di lavorar di concerto con quell' Architetto, il quale riconobbe subito le cognizioni superiori del Francese, ed ebbe il coraggio di confessarlo al Re stesso, dicendogli, che sua Maestà avrebbe potuto dispensarsi di farlo venire sì da lontano, poichè egli avea trovato in M. de Chambray un Maestro ch'ei si farebbe onore di seguitare, e ch'ei non era sì temerario da cambiar niente al suo progetto del Louvre."—Vita di Rolando Freart de Chambray.—[Ed.]

† Pl. of Orders.

‡ "The *Ionique order* doth represent a kinde of feminine slendernesse; yet, saith *Vitruvius*, not like a light housewife, but in a decent dressing, hath much of the *matrone*." "Best knowne by his trimmings, for the bodie of this *columne* is perpetually chaneled, like a thicke pleighted gowne. The *capitall* dressed on each side, not much unlike women's wires, in a spirall wreathing, which they call the *Ionian Voluta*."—[Ed.]

"The Corinthian,"* says Sir Henry Wotton, "is a column lasciviously decked, like a wanton courtezan.† Its proportions are elegant in the extreme, every part of the order is divided into a great variety of members, and abundantly enriched with a diversity of ornaments." "The ancients," says De Chambrai, "aiming at the representation of a feminine beauty, omitted nothing either calculated to embellish or capable of perfecting their work." And he observes, "that in the many examples left to this order such a profusion of different ornaments is introduced that they seem to have exhausted imagination in the contrivance of decorations for this masterpiece of the art. Scamozzi calls it the Virginal,‡ and it certainly has all the delicacy in its form, with all the gaiety, gaudiness, and affectation in its dress peculiar to young women."

The Composite order,§ being, properly speaking, only a different species of the Corinthian, distinguished from it merely by some peculiarities in the capital, or other trifling deviations, retains in a great measure the same character, and requires no particular description.‖

To give a striking idea of these different properties, and to render the comparison between the orders more easy, I have represented¶ them all of the same height, by which means the gradual increase of delicacy and richness is easily perceivable, as are likewise the relations between the intercolumniations of the different orders and the proportions which their pedestals, imposts, archivolts, and other parts with which they are on various occasions accompanied, bear to each other.

The proportions** of the orders were by the ancients formed on those of

* Pl. of Orders, page 111.

† Sir Henry adds, "and therein much participating, as all inventions do, of the place where they were first born; *Corinthe* having been without controversie one of the wantonest townes in the world."—[Ed.]

‡ Parte seconda, lib. vi. cap. 10, "Gracile e Virginale."—[Ed.]

§ Pl. Orders.

‖ "The last is the *Compounded order*, his *name* being a briefe of his *nature:* for this pillar is nothing in effect but a *medlie*, or an *amasse* of all the precedent *ornaments*, making a new kinde by stealth, and though the most richly tricked, yet the poorest in this, that he is a borrower of all his beautie."—Sir Henry Wotton's Elements of Architecture. There is much quaintness in the description of the orders by the most worthy and excellent Provost of Eton College, but there is more than an equal quantity of truth, feeling, and artist-like discrimination in his writing on the subject. He was a man worthy such an amiable, simple-minded, and pious biographer as honest Izaak Walton.—[Ed.]

¶ Pl. Orders, page 111.

** Proportion (*pro portione*, according to a certain measure or size, or in a certain relation) is, in architecture, those ratios of the whole to its parts, and of the parts among themselves which are suitable to their use and situation. In numbers, it is a similitude of ratios, a term with which proportion is often confounded, though their meanings are altogether different; ratios being the relation to each other of two things or magnitudes, whilst proportion relates to four or more terms or things, or two or more ratios, each

the human body, and consequently it could not be their intention to make a Corinthian column, which, as Vitruvius observes, is to represent the delicacy

having two or more terms. There are various species of proportions in numbers, as, *arithmetical*, where there is an equality between the differences of the terms, as 12, 9, 6; *geometrical*, wherein there is an equality between the quotients of the terms, as 9, 6, 4, for 9 divided by 6 is the same as 6 divided by 4, each being $1\frac{1}{2}$; *harmonical*, wherein the first term is to the third as the difference between the first and second is to the difference between the second and third, or in four terms, where the first is to the fourth as the difference between the first and second is to the difference between the third and fourth, as 6, 4, 3, or with four terms, 24, 16, 12, 9; a *sesquialteral* ratio is that wherein the greater term contains the less once, with a remainder equal to exactly half the less term, as 3 to 2.

Wren, in one of his Essays published in the *Parentalia*, says, "There are two causes of beauty, natural and customary. Natural is from geometry, consisting in uniformity (that is, equality) and *proportion*. Customary beauty is begotten by the use of our senses to those objects which are usually pleasing to us for other causes, as familiarity or particular inclination breeds a love to things not in themselves lovely. Here lies the great occasion of errors, here is tried the architect's judgment, but always the true test is natural or geometrical beauty."

The most obvious principle in respect to proportion seems to be that no support should be burthened with a greater quantity of matter than itself contains, or, in other words, than the weight placed on a column should not more than equal its own weight, or that in a series of columns, as in a portico, for instance, the cubical contents of the entablature and pediment, if any, should not be greater than those of the supports or columns. How far the ancients acted on this principle will be presently seen, by a comparison in this respect of some of the finest remains of their works. Wren, at all events seems, though a shrewd and accurate observer, to have had no idea of such a principle, because he remarks that though the Corinthian was slenderer yet it bore a greater weight of entablature than the more ancient orders, forgetting that its columns are, or ought to be, always placed nearer to each other.

It is astonishing that the author, a man of sound understanding, should place in the passage any reliance on the dreams of Vitruvius, in respect of the orders of architecture having been formed on the proportions of the human body; it is as absurd a proposition as one more recently broached (O. B. Scamozzi's Palladio), wherein an analogy is pretended to be discovered between the musical concords and the proper proportions of buildings. These doctrines will not do for the present age. The laws of statics, though not perhaps in the earliest periods so well understood as now, were nevertheless so intuitively felt as to guide the first architects in their proportions, rather than those laws deducible from things which were heterogeneous, if indeed at all known.

When the principle of weight for weight is abandoned the work can only be stable from the application of science to counteract the tendency to ruin by some means of reaction. This is particularly observable in the Gothic structures, wherein we always find an equipoise for the thrusts of their stone vaulting by the most obvious and scientific means.

To return, however, more strictly to the subject, we have taken five examples of celebrated buildings, wherein, as a method of ascertaining the truth of the principle just adverted to, the superficies of the columns, cut through their axes vertically by a plane parallel to the front of the building, are compared with the area of the entablature and pediment of each respectively. The weights of each being as the cubes of the square roots of the areas, these areas will equally represent the supports and weights in either of the terms.

In the Parthenon, the supports are to the weights as . .	1546 : 1843	or 1 :	1·19
But if the steps be reckoned the ratio will be as . . .	2183 : 1843	or 1 :	0·84
In the Doric Portico, the supports are to the weights as .	4070 : 3990	or 1 :	0·98
In the Pseudo-dipteral Temple at Pæstum, the supports are to the weights as	1090 : 1103	or 1 :	1·01
In the Temple or Erectheus, as	2640 : 2800	or 1 :	1·07
In the Pantheon at Rome, as	1566 : 1723	or 1 :	1·10

of a young girl, as thick and much taller than a Doric one, which is designed to represent the bulk and vigour of a muscular full-grown man. Columns so formed could not be applied to accompany each other without violating the laws both of real and apparent solidity, as in such case the Doric dwarf must be crushed under the strapping Ionic, or gigantic Corinthian virago, triumphantly rising uppermost, and reversing the natural, the necessary predominance in the composition.

Nevertheless Vignola,* Palladio,‖ Scamozzi,† Blondel,‡ Perrault,§ and many others, if not all the great modern artists, have considered them in this

So that there is every appearance of this theory being far from fanciful. The reader may consult with advantage Lebrun's "Theorie de l'Architecture Grecque et Romaine, deduites de l'Analise des Monumens Antiques," Fol. Paris, 1807, a work which first indueed the Editor to turn his attention to the subject.

In the progress of the orders from Tuscan to Composite, that is, from seven to eleven diameters in height, if the entablature be a constant quantity equal to one quarter the height of the column, its bulk increases as the intercolumniations decrease, and is in an inverse ratio to the width of the intercolumniations.

For in the Tuscan	$\frac{1}{4}$ of $\frac{7}{1} = 1\frac{3}{4}$	in terms of the diameter.
Doric	$\frac{1}{4}$ of $\frac{8}{1} = 2$	do.
Ionic	$\frac{1}{4}$ of $\frac{9}{1} = 2\frac{1}{4}$	do.
Corinthian	$\frac{1}{4}$ of $\frac{10}{1} = 2\frac{1}{2}$	do.
Composite	$\frac{1}{4}$ of $\frac{11}{1} = 2\frac{3}{4}$	do. —[Ed.]

* Giacomo Barozzi of Vignola, in the territory of Modena, according to Chalmers, of Bologna, whence he takes his name, was born in 1507, and died 1573, though Chalmers says 1575. In his early days he delighted in painting, but his success was not equal to his love for that branch of the arts. He afterwards applied himself to architecture, and the study of perspective, in which his genius led to better results. He succeeded Michael Angelo as architect of St. Peter's, and his fame as an architectural author is not less than his reputation as a practical artist. His works are, "Regole dei cinque ordini d'Architettura," Fol. no date, 32 plates. The best, according to Chalmers, is that printed at Amsterdam in 1631 or 1642, Fol. The French editions are not valuable.—[Ed.]

† See note, page 107.—[Ed.]

‡ See note *l*, page 95.—[Ed.].

§ Claude Perrault, who was one of the greatest architects France ever produced, was born at Paris in 1613, and died October 9, 1688. Bred a physician, he exhibited an early taste for the fine arts and liberal sciences, of which he acquired consummate knowledge. His greatest work was the admirable façade of the Louvre. Voltaire pronounced it one of the most august monuments of architecture in the world: but there have been and are many persons more capable of judging on this matter than M. Voltaire. It is, however, notwithstanding its architectural inaccuracies, a very splendid design, and an honor to the French capital.

By the advice of Colbert, Perrault translated Vitruvius into French, and illustrated it with notes and plates. The first edition was in 1673, Fol. The second edition, which is the best, is Fol., Paris, 1684. His other work on architecture was "Ordounance des cinq Espèces de colonnes selon les Anciens," Fol. 1683. Besides these, he published several other of his productions.—[Ed.]

‖ Andrea Palladio, born in the territory of Vicenza, in the year 1518, died in 1580. To his birth and existence this country is especially indebted for its progress in architecture, and for the formation of a school which has done it honor, and given it a character of the first class, in the opinion of its continental neighbours. Among the names which that school enrols are those of Inigo Jones, Sir Christopher Wren,

light; that is, they have made the diameters of all their orders the same, and consequently their heights increasing, which, besides giving a wrong idea of the character of these different compositions, has laid a foundation for many erroneous precepts and false reasonings to be found in different parts of their works, of which notice will in due time be taken.

In the opinion of Scamozzi, columns should not be less than seven of their diameters in height, nor more than ten; the former being, according to him, a good proportion in the Tuscan, and the latter in the Corinthian order. The practice of the ancients in their best works being conformable to this precept, I have, as authorized by the doctrine of Vitruvius, made the Tuscan column seven diameters in height, and the Doric eight, the Ionic nine, as Palladio and Vignola have done, and the Corinthian and Composite ten; which last measure is a mean between the proportions observed in the Pantheon, and at the three columns in the Campo Vaccino, both which are esteemed most excellent models of the Corinthian order.

Nicholas Hawksmoor, James Gibbs, Lord Burlington, Carr of York, Sir Robert Taylor, our author himself, and a long list whose works reflect a lustre on the name of Palladio, which all the new churches and Grecian profiles of this age will not eclipse.

The celebrated Gian-Giorgio Trissino was his Mæcenas. At his charge he visited Rome three several times, where he applied himself to the study and restoration of the remains of the magnificent structures of the ancient city. The result was a happy modification of the orders and their proportions to domestic habitations, unknown, and hence unpractised, till his time.

Of his numerous and captivating buildings, this note does not afford the space for a list. Every one, however, has heard of the church of the Redeemer at Venice, and of the Villa Capra at Vicenza. "These," if the language may be used without profanation, "are the work of his hands." What an age must that have been for our art wherein two such master spirits as Sanmichele and Palladio were contemporaries, for the former lived till 1559.

Palladio, at the age of sixty-two years, was snatched away from this world. His funeral was attended by all the Olympic academicians of Vicenza, and his remains deposited in Santa Corona, a church of the Dominicans in that city. His figure was rather small, his countenance remarkably mild and benign, and the height of his forehead involuntarily reminds us of our immortal Shakspeare's face. His demeanour and conduct were modest and obliging, and the esteem in which he was held on these accounts by all persons with whom he had business, is a strong proof of the truth of the accounts of his biographers. Milizia says of his works, "Le Nazioni più colte d'Europa studiano i suoi libri, e gl' Inglesi spezialmente lo stimano il loro Newton dell' Architettura." Palladio furnished D. Barbaro with the plates for his translation of Vitruvius.

The edition, 4 vols. Fol., of this architect's buildings, was published under the following curious circumstances. Vincenzo Scamozzi, of whom see in a preceding note, page 107, left his property to any one of his countrymen, Vicentines, who should become the best architect of his day, under the obligation, however, of assuming his name. Ottavio Bertotti, born 1726, in the judgment of the family of Capra, was that person. To him was adjudged the patrimony, and, having taken the name of Scamozzi, he celebrated himself by the publication in question. This Ottavio Bertotti was not without employment in his profession in the neighbourhood of his native place. For the edition of his works see a preceding note, page 95.—[Ed.]

The height of the entablature, in all the orders, I have made one-quarter of the height of the column, which was the common practice of the ancients, who, in all sorts of entablatures, seldom exceeded or fell much short of that measure.

Nevertheless Palladio, Scamozzi, Alberti, Barbaro,* Cataneo,† Delorme,‡ and others of the modern architects, have made their entablatures much lower in the Ionic, Composite and Corinthian orders, than in the Tuscan or Doric. This, on some occasions, may not only be excusable, but highly proper, particularly where the intercolumniations are wide, as in a second or third order, in private houses, or inside decorations, where lightness should be preferred to dignity, and where expense, with every impediment to the conveniency of the

* Daniel Barbaro, born in 1513, died in 1570, was a man of very considerable learning, and was ambassador from Venice to England, which he quitted in 1551. His architectural works are "Pratica della Prospettiva," Fol. Venice, 1568, and an Italian translation of Vitruvius, with copious notes, and plates furnished by Palladio, 4to, Venice, 1584. This translation has passed through many editions.—[Ed.]

† Pietro Cataneo, an Italian architect, who wrote a commentary on Vitruvius, in his own language, Fol. Venice, 1554—67.—[Ed.]

‡ Philibert Delorme, a native of Lyons, was born in the beginning of the sixteenth century. He may be fairly ranked among the restorers of architecture in France; but as the father of constructive skill, more especially in carpentry, he has the highest claims on our gratitude. His employment in Paris and its vicinity, was very extended. In the former the Palace of the Tuileries, in its original state, was from his designs, Jean Bullant being said to have been associated with him for the purpose of carrying them into execution. Both these architects have been honored by Chambray, who thought them not unworthy to stand by the side of the greatest masters in his celebrated "Parallèle."

The taste of the age decoyed Delorme into the customary division of his façades into "pavillons," as the French term them, with towers whose quoins are heavily rusticated, a practice destructive of all effect, as well as unity of design, and calculated to make that appear *petite* which its volume alone would otherwise have rendered imposing.

Delorme was the author of two works on architecture, viz. a complete Treatise, in 9 books, Fol. Paris, 1567, and the other on Carpentry, entitled, "Nouvelle Invention pour bien bâtir et à petits frais," Fol. Paris, 1561. The latter contains an entirely new system of carpentry, in which the chief feature is a substitution of comparatively thin curviform ribs for the heavy trussed roofs, then in general use. These ribs are formed of planks in thicknesses rarely more than three or four feet long, about a foot wide, and one inch thick; their forms, of course, depending on those of the plan and section. They are secured at their feet by a strong wall plate, laid horizontally. The joint of each plank is broken in the middle of the contiguous plank. As the whole security of the system depends on the perpendicularity of the ribs, they are kept in their vertical direction by keys which pierce them, pinned or wedged on each side of the rib. The most magnificent specimen of this species of carpentry, was in the dome of the Halle aux Bleds at Paris, designed by Legrand and Molinos, now replaced, in consequence of its destruction by fire, with a cast-iron ribbed dome.

Not the least merit of Delorme's invention is, that of its requiring but small timbers for very extended spans, independent of its consequent lightness. Specimens of this sort of construction will be found in Krafft's L'Art de la Charpente, Fol. Paris.

Quatremère de Quincy, under the art. *Delorme*, Encyc. Methodique, says of this architect's works, that they, "assurent à son nom une gloire peutêtre plus réelle, mais a coup sûr plus durable, que celle qu'il doit à ses edifices en partie detruits ou denaturés."—[Ed.]

fabric, are carefully to be avoided, but to set entirely aside a proportion which seems to have had the general approbation of the ancient artists, is surely presuming too far.

The reason alleged in favour of this practice is the weakness of the columns in the delicate orders, which renders them unfit for supporting heavy burdens; and where the intervals are fixed, as in a second order, or in other places, where wide intercolumniations are either necessary or not to be avoided, the reason is certainly sufficient; but if the artist is at liberty to dispose his columns at pleasure, the simplest and most natural way of conquering the difficulty is to employ more columns, by placing them nearer to each other, as was the custom of the ancients. And it must be remembered that though the height of the entablature in a delicate order is made the same as in a massive one, yet it will not, either in reality or in appearance, be equally heavy;* for the quantity of matter in the Corinthian cornice, A, is considerably less than in the Tuscan cornice, B; and the increased number of parts composing the former of these will, of course, make it appear far lighter than the latter.†

With regard to the parts of the entablature I have followed the method of Serlio,‡ in his Ionic and Corinthian orders, and of Perrault, who, in all his orders, excepting the Doric, divides the whole height of the entablature into ten equal parts, three of which he gives to the architrave, three to the frieze, four to the cornice; and in the Doric order he divides the whole height of the entablature into eight parts, of which two are given to the architrave, three to the frieze, and three to the cornice.

These measures deviate very little from those observed in the greatest number of antiques now extant at Rome, where they have stood the test of many ages; and their simplicity renders them singularly useful in composition, as they are easily remembered and easily applied.

Of two manners used by architects to determine the dimensions of the mouldings, and the lesser parts that compose an order, I have chosen the simplest, readiest, and most accurate, which is, by the module or semi-diameter of the column, taken at the bottom of the shaft, and divided into thirty minutes.

* Fig. 2, Plate of Mouldings.

† See note at page 107.

‡ Sebastiano Serlio, a Bolognese, who died in 1552, was a scholar of Baldassare Peruzzi, and was the first architect who measured, and published representations of, the principal remains of Roman architecture. His death occurred at Fontainebleau, whilst in the service of Francis I. The first edition of his work is 4to, Vicenza, 1584; one also at Venice, same size, 1619.—[Ed.]

There are, indeed, many who prefer the method of measuring by equal parts, imagining beauty to depend on the simplicity and accuracy of the relations existing between the whole body and its members, and alleging that dimensions which have evident affinities are better remembered than those whose relations are too complicated to be immediately apprehended.

With regard to the former of these suppositions it is evidently false, for the real relations subsisting between dissimilar figures have no connection with the apparent ones; and with regard to the latter it may or may not be the case, according to the degree of accuracy with which the partition is made: for instance, in dividing the Attic base, which may be numbered among the simplest compositions in architecture, according to the different methods, it appears to me as easy to recollect the numbers, 10, $7\frac{1}{2}$, 1, $4\frac{3}{4}$, 1, $5\frac{3}{4}$, as to remember that the whole height of the base is to be divided into three equal parts; that two of these three are to be divided into four, that three of the four are to be divided into two, and that one of the two is to be divided into six, which are to be divided into three.

But admitting it were easier to remember the one than the other, it doth not seem necessary nor even advisable, in a science where a vast diversity of knowledge is required, to burden the memory with a thousand trifling dimensions. If the general proportions be known, it is all that is requisite in composing, and when a design is to be executed it is easy to have recourse to figured drawings or to prints. The use of the module is universal throughout the order and all its appurtenances: it marks their relations to each other, and being susceptible of the minutest divisions, the dimensions may be speedily determined with the utmost accuracy, while the trouble, confusion, uncertainty, and loss of time in measuring by equal parts are very considerable, seeing it is necessary to form almost as many different scales as there are different parts to be divided.

Columns, in imitation of trees, from which they drew their origin, are tapered in their shafts. In the antiques the diminution is variously performed, sometimes beginning from the foot of the shaft, at others from one-quarter or one-third of its height, the lower part being left perfectly cylindrical. The former of these methods was most in use amongst the ancients, and being the most natural, seems to claim the preference, though the latter has been almost universally practised by modern artists, from a supposition, perhaps, of its being more graceful, as it is more marked and strikingly perceptible.

The first architects, says Mons. Auzoult, probably made their columns in straight lines, in imitation of trees, so that their shaft was a frustrum of the

cone; but finding this form abrupt and disagreeable, they made use of some curve, which, springing from the extremities of the superior and inferior diameters of the column, swelled beyond the sides of the cone, and, by that means, gave a more pleasing figure to the outline. Vitruvius,* in the second chapter of his third book, mentions this practice, but in so obscure and cursory a manner that his meaning has not been understood; and several of the modern architects, intending to conform themselves to his doctrine, have made the diameters of their columns greater in the middle than at the foot of the shaft. Leon Baptista Alberti,† with others of the Florentine and Roman architects, carried this practice to a very absurd excess, for which they have been justly blamed, as it is neither natural, reasonable, nor beautiful.

Monsieur Auzoult further observes, that a column, supposing its shaft to be the frustrum of a cone, may have an additional thickness in the middle, without being swelled there, beyond the bulk of its inferior parts; and supposes the addition mentioned by Vitruvius to signify nothing more than the increase towards the middle of the column, occasioned by changing the straight line, which at first was in use, into a curve.

This supposition is exceedingly just, and founded on what is observable in the works of antiquity, where there is no single instance of a column thicker in the middle than at the bottom, though all, or most of them, have the swelling hinted at by Vitruvius, all of them being terminated by curves, some few granite columns excepted, which are bounded by straight lines: a proof, perhaps, of their antiquity, or of their having been wrought in the quarries of Egypt by unskilful workmen.

Blondel in his book, entitled "Resolution des quatre principaux Problémes d'Architecture," teaches various manners of diminishing columns, the best and simplest of which is by means of the instrument invented by Nicomedes to describe the first conchoid: for this, being applied at the bottom of the shaft, performs at one sweep both the swelling and the diminution, giving such a graceful form to the column that it is universally allowed to be the most perfect practice hitherto discovered. The columns in the Pantheon, accounted the

* Lib. iii. cap. 2. "De adjectione, quæ adjicitur in mediis Columnis; quæ apud Græcos ἔντασις apellatur, in extremo libro erit formatio ejus."—Wotton, in his Elements of Architecture, says, "And here I must take leave to blame a practice growne (I know not how) in certaine places too familiar, making *pillars* swell in the middle, as if they were sicke of some *tympany* or *dropsie*, without any authentique pattern or rule, to my knowledge, and unseemely to the very judgment of sight."—[Ed.]

† This learned author divides the height of the column into seven parts, and places the greatest swelling at the height of the third division of these parts from the base, so that, as he takes Vitruvius in the strict letter, it is nearer the middle of the height of the column.—[Ed.]

most beautiful among the antiques, are traced in this manner, as appears by the exact measures of one of them, to be found in Desgodetz's* Antiquities of Rome.

To give an accurate idea of the operation it will be necessary first to describe Vignola's method of diminution, on which it is grounded. "As to this second method," says Vignola,† "it is a discovery of my own; and although it be less known than the former it will be easily comprehended by the figure. Having therefore determined the measures of your column (that is to say, the height of the shaft, and its inferior and superior diameters),‡ draw a line indefinitely from C through D, perpendicular to the axis of the column;" this done, set off the distance C D, which is the inferior semi-diameter, from A, the extreme point of the superior semi-diameter, to B, a point in the axis. Then from A, through B, draw the line A B E, which will cut the indefinite line C D in E; and from this point of intersection, E, draw through the axis of the column any number of rays as E *b a*, on each of which, from the axis towards the circumference, setting off the interval C D, you may find any number of points, *a*, *a*, *a*, through which, if a curve be drawn, it will describe the swelling and diminution of the column.

Though this method be sufficiently accurate for practice, especially if a considerable number of points be found, yet, strictly speaking, it is defective, as the curve must either be drawn by hand or by applying a flexible ruler to all the points, both which are liable to variations. Blondel, therefore, to obviate this objection (after having proved the curve passing from A to C through the points *a*, *a*, to be of the same nature with the first conchoid of the ancients), employed the instrument of Nicomedes to describe it, the construction of which is as follows:—

Having determined, as above, the length of the shaft with the inferior and superior diameters of the column, and having likewise found the length of the line C D E, take three rulers, either of wood or metal, as F G, I D, and A H: of which let F G and I D be fastened together at right angles in G; cut a dove-tail groove in the middle of F G, from top to bottom, and at the point E on the ruler I D (whose distance from the middle of the groove in F G

* Desgodetz (A.) "Edifices de Rome dessinés et measurés tres exactement," Fol., Paris, 1682. The student is cautioned against Marshall's translation of this book, which is as inaccurate as it is ill-executed; it is published in two vols. Fol., 1771, Lond. The work on the Antiquities of Rome, lately published by G. L. Taylor and Edward Cresy, Architects, may be consulted by the student with great advantage, and reflects the highest credit on the exertions of those gentlemen.—[Ed.]

† "De cinque ordini D' Architettura," cap. 7. page 51. Stampani's Ed., Fol., Rome, 1770.—[Ed.]

‡ Figure 3, Plate of Mouldings.

is the same as that of the point of intersection from the axis of the column) fix a pin; then on the ruler A H set off the distance A B, equal to C D the inferior semi-diameter of the column, and at the point B fix a button, whose head must be exactly fitted to the groove made in F G, in which it is to slide; and at the other extremity of the ruler A H, cut a slit or channel from H to K, whose length must not be less than the difference of length between E B and E D, and whose breadth must be sufficient to admit the pin fixed at E, which must pass through the slit, that the ruler may slide thereon.

The instrument being thus completed, if the middle of the groove, in the ruler F G, be placed exactly over the axis of the column, it is evident that the ruler A H, in moving along the groove, will, with its extremity A, describe the curve A *a a* C, which curve is the same as that produced by Vignola's method of diminution, supposing it done with the utmost accuracy; for the interval A, B, *a*, *b*, is always the same, and the point E is the origin of an infinity of lines, of which the parts B A, *b a*, *b a*, extending from the axis to the circumference, are equal to each other, and to D C. And if the rulers be of an indefinite size, and the pins at E and B be made to move along their respective ruler, so that the intervals A B and D E may be augmented or diminished at pleasure, it is likewise evident that the same instrument may be thus applied to columns of any size.

In the remains of antiquity the quantity of the diminution is various, but seldom less than one-eighth of the inferior diameter of the column, nor more than one-sixth of it. The last of these is by Vitruvius esteemed the most perfect, and Vignola has employed it in four of his orders, as I have done in all of them, there being no reason for diminishing the Tuscan column more, in proportion to its diameter, than any of the rest; though it be the doctrine of Vitruvius, and the practice of Palladio, Vignola, Scamozzi, and almost all the modern architects. On the contrary, as Monsieur Perrault* justly observes, its diminution ought rather to be less than more, as it actually is in the Trajan column, being there only one-ninth of the diameter. For even when the same proportion is observed through all the orders, the absolute quantity of the diminution in the Tuscan order, supposing the columns of the same height, exceeds that in the Corinthian in the ratio of ten to seven; and if, according to the common practice, the Tuscan column be less by one-quarter at the top than at its foot, the difference between the diminution in the Tuscan and in the Corinthian columns will be as fifteen to seven, and in the Tuscan and

* The following Table is extracted and amplified from Perrault's "Ordonnance des Cinq Especes de

Doric nearly as fifteen to nine; so that, notwithstanding there is a very considerable difference between the lower diameters of a Tuscan and of a Doric column, both being of the same height, yet the diameters at their top will be nearly equal, and consequently the Tuscan column will in reality be no stronger than the Doric one, which is contrary to the character of the order.

Vitruvius* allots different degrees of diminution to columns of different heights, giving to those of fifteen foot, one-sixth of their diameter; to such as are from twenty to thirty foot, one-seventh; and when they are from forty to fifty foot high, one-eighth only, observing that as the eye is easily deceived in considering distant objects, which always seem less than they really are, it is necessary to remedy the deception by an increase of their dimensions, otherwise the work will appear ill-constructed and disagreeable to the eye.

Most of the modern architects have taught the same doctrine, but Perrault in his notes, both on this passage and on the second chapter of the sixth book, endeavours to prove the absurdity thereof. In fact, it is on most occasions, if not on all, an evident error, which Vitruvius and his followers have probably been led into through neglect of combining circumstances. For if the

Colonnes," Partie 1ère, cap. 8.—The heights are in terms of the French foot, which is to the English as 1·066 : 1·000.

		Height of Shaft.		Diameter.		Diminution.	Ratio of Diminution.
		Feet.	Inches.	Feet.	Inches.	Minutes.	
Doric	Theatre of Marcellus	21	0	3	0	12	0·200
	Coliseum	22	10½	2	8¼	4½	0·077
Ionic	Temple of Concord	36	0	4	2½	10⅓	0·182
	Temple of Fortuna Virilis	22	10	2	11	7½	0·125
	Coliseum	23	0	2	8¾	10	0·166
Corinthian	Temple of Peace	49	3	5	8	6½	0·111
	Portico of Pantheon	36	7	4	6	6⅛	0·106
	Altars of Pantheon	10	10	1	4½	8	0·133
	Temple of Vesta	27	5	2	11	6½	0·111
	Temple of Sybil at Tivoli	19	0	2	4	8	0·133
	Temple of Faustina	36	0	4	6	8	0·133
	Columns of Campo Vaccino	37	6	4	6½	6½	0·111
	Basilica of Antoninus	37	0	4	5½	6⅛	0·106
	Arch of Constantine	21	8	2	8⅔	7	0·117
	Interior of Pantheon	27	6	3	5	8	0·133
	Portico of Septimius	37	0	3	4	7⅓	0·125
Composite	Baths of Diocletian	35	0	4	4	11⅓	0·200
	Temple of Bacchus	10	8	1	4¼	6½	0·111
	Arch of Titus	16	0	1	11⅔	7	0·117
	Arch of Septimius Severus	21	8	2	8½	7	0·117 [Ed.]

* Lib. iii. cap. 2.—[Ed.]

validity of Perrault's arguments be not assented to, and it is required to judge according to the rigour of optical laws, it must be remembered that the proper point of view for a column of fifty foot high is not the same as for one of fifteen, but on the contrary more distant, in the same proportion, as the column is higher; and that consequently the apparent relation between the lower and upper diameters of the column will be the same, whatever be its size. For if we suppose* A to be a point of view, whose respective distance from each of the columns *f g*, F G, is equal to the respective heights of each, the triangles *f* A *g*, F A G, will be similar; and A *f*, or A *h*, which is the same, will be to A *g*, as A F, or its equal A H is to A G; therefore if *d e* be in reality to *b c* as D E is to B C it will likewise be apparently so; for the angle *d* A *e* will then be to the angle *b* A *c* as the angle D A E is to the angle B A C, and if the real relations differ the apparent ones will likewise differ.

I have supposed the eye of the spectator to be in a line perpendicular to the foot of the shaft; but if the columns be proportionably raised to any height above the eye the argument will still remain in force, as the point of view must of course be proportionably more distant; and even when columns are placed immediately on the ground, which seldom or ever is the case, the alteration occasioned by that situation is too trifling to deserve notice.

When, therefore, a certain degree of diminution, which by experience is found pleasing, has been fixed upon, there will be no necessity for changing it, whatever be the height of the column, provided the point of view is not limited; but in close places, where the spectator is not at liberty to choose a proper distance for his point of sight, the architect, if he inclines to be scrupulously accurate, may vary; though it is in reality a matter of no importance, as the nearness of the object will render the image thereof indistinct, and consequently any small alteration imperceptible.†

Scamozzi,‡ who esteems it an essential property of the delicate orders to exceed the massive ones in height, has applied the above-cited precept of Vitruvius to the different orders, having diminished the Tuscan column one quarter of its diameter, the Doric one-fifth, the Ionic one-sixth, the Roman one-seventh, and the Corinthian one-eighth. In the foregoing part of this chapter I have shown the fallacy of his notion with respect to the heights of

* Fig. 4, Plate of Mouldings.

† It is by an attentive consideration of all these circumstances, and of the aspect of a building, that the intelligent architect is enabled to "snatch a grace beyond the reach of art."—[Ed.]

‡ Parte Seconda, Lib. vi. c. 6.

his orders, and likewise endeavoured to prove the error of diminishing the Tuscan column more than any of the others, so that it will be needless to say anything further on these subjects now; for as the case is similar, the same arguments may be employed in confutation thereof.

My intention being to give an exact idea of the orders of the ancients, I have represented them under such figures and proportions as appear to have been most in use in the esteemed works of the Romans, who, in the opinion of Leon Bap. Alberti, and other eminent writers, carried architecture to its perfection. It must not, however, be imagined that the same general proportions will, on all occasions, succeed. They are chiefly collected from the temples and other public structures of antiquity, and may by us be employed in churches, palaces, and other buildings of magnificence, where majesty and grandeur of manner should be extended to their utmost limits, and where, the whole composition being generally large, the parts require an extraordinary degree of boldness to make them distinctly perceptible from the proper general points of view. But in less considerable edifices, and under various circumstances of which I shall hereafter give a detail, more elegant proportions may often be preferable.

OF THE TUSCAN ORDER.

Among the antiques there are no remains of a regular Tuscan order; the doctrine of Vitruvius upon that subject is obscure; and the profiles of Palladio, Scamozzi, Serlio, Delorme and Vignola, are all, more or less imperfect.

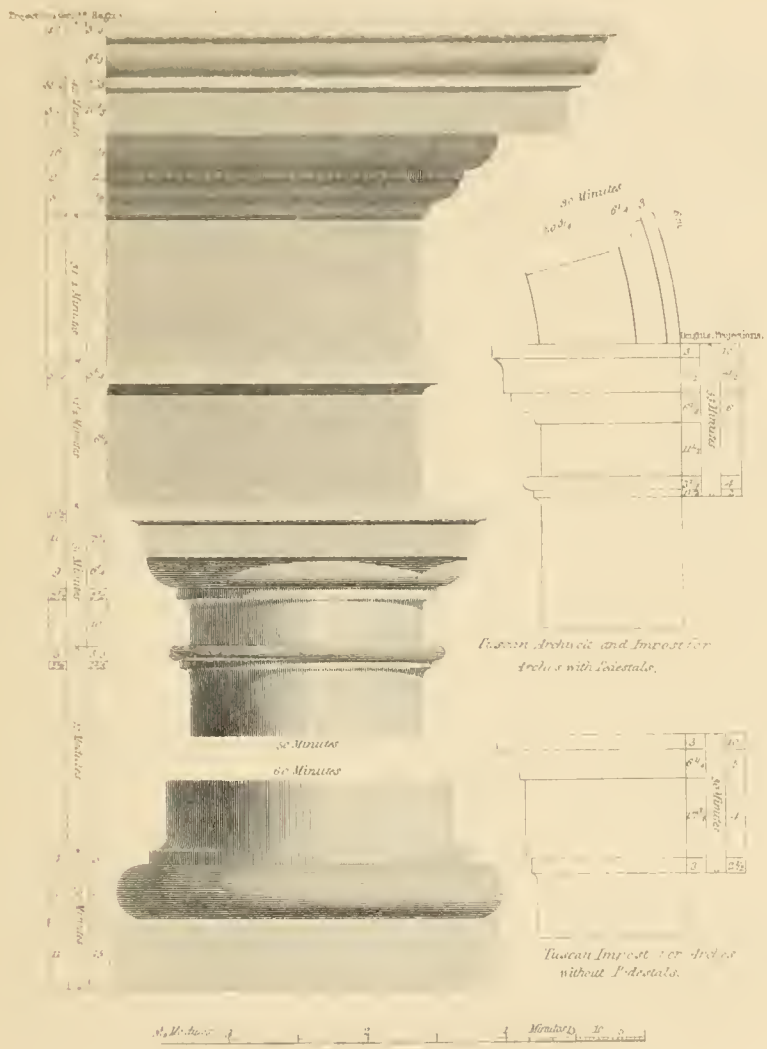
Of the two designs left us by Palladio, that taken from the description of Vitruvius is unpleasingly rustic. The other, again, is too rich,* and injudiciously composed. That of Scamozzi is yet richer, and much too like the Doric. Serlio's is heavy; and Vignola's, though superior to the others, is defective in the cornice, which is clumsy compared with the rest of the order, ill-proportioned in its parts, and incorrectly profiled, as it finishes with a supporting moulding, which has nothing to support, and consequently must excite the idea of a mutilation; the more striking, as the general outline of the composition resembles exactly the bed moulds of the Ionic cornice, supposing the dentil band left uncut, as is often the case.

In the design here annexed I have chiefly imitated Vignola's, who in this order has been almost universally followed. Even Inigo Jones, who was so close an adherer to Palladio, has employed Vignola's profile in his York Stairs, and others, his buildings. But as the cornice appears to me far inferior to the rest of the composition I have not scrupled to reject it, and to substitute in its place that of Scamozzi, with such alterations as were evidently necessary to render it perfect. Conformably to the doctrine of Vitruvius,† and to the almost general practice of the moderns, I have given to the height of the column fourteen modules or seven diameters, and to that of the whole entablature, three and a half modules; which being divided into ten equal parts, three

* It cannot be properly called *rich*. The only differences between Palladio's profile and the author's are, that in the former there is one more member, viz., in the architrave which has two fasciæ, and that in the bed mouldings Palladio has a cyma recta, fillet, and cavetto. Sir William has changed these for an ovolo fillet and cyma reversa, and the projection of his capital is greater than that in Palladio's profile.—The greatest fault of the author's profile lies in the relative proportions of the frieze and architrave, and has been induced by his desire to get rid of Palladio's lower fascia.—[Ed.]

† De Tuscanis rationibus ædium sacrarum. Lib. iv. c. 7.—[Ed.]

THE TUSCAN ORDER


30 Minutes
60 Minutes
Tuscan Archuvle and Imvost for Arches with Pedestals.
Tuscan Imvost for Arches without Pedestals.

F.E. Gruby del. W. Chambers in. J. Roffe sc

Published by the Proprietors of the Building News, 1860

Printed from Stone by [illegible]

of them are for the height of the architrave, three for that of the frieze, and the remaining four for the cornice. The capital is in height one module, the base, including the lower cincture of the shaft, is also one module, and the shaft, with its upper cincture and astragal, twelve modules. These are the general measures of the order.

With respect to the particular dimensions of the minuter parts, they may be collected from the design, whereon the heights and projections of each member are figured, the latter of these being counted from perpendiculars raised at the extremities of the inferior and superior diameters of the shaft—a method preferable to that of De Chambrai and Desgodetz, who count from the axis of the column, because the relations between the heights and projections of the parts are more readily discoverable, and whenever a cornice or entablature is to be executed without a column, which frequently happens, it requires no additional time or labour, as the trouble of deducting from each dimension, the semi-diameter of the column is saved.

Scamozzi, that his bases might be of the same height in all the orders, has given to the Tuscan one, exclusive of the cincture, half a diameter, but I have rather chosen to imitate Vignola and Palladio, who in this order have deviated from the general rule, for as the Tuscan base is composed of two members only, instead of six, which constitute the other bases, it becomes much too clumsy when the same general proportion is observed.

The Tuscan order admits of no ornaments of any kind; on the contrary it is sometimes customary to represent on the shaft of its column rustic cinctures, as at the Palace Pitti in Florence, that of the Luxembourg in Paris, York Stairs in London, and many other buildings of note. This practice, though frequent, and to be found in the works of many celebrated architects, is not always excusable, and should be indulged with caution, as it hides the natural figure of the column, alters its proportions, and affects the simplicity of the whole composition. There are few examples of these bandages in the remains of antiquity, and in general it will be advisable to avoid them in all large designs, reserving the rustic work for the intercolumniations, where it may be employed with great propriety to produce an opposition which will help to render the aspect of the whole composition distinct and striking.

But in smaller works of which the parts being few are easily comprehended, they may be sometimes tolerated, sometimes even recommended, as they serve to diversify the forms, are productive of strong contrasts, and contribute very considerably to the masculine, bold aspect of the composition.

Le Clerc* thinks them proper in gates of citadels and prisons, of which the entrances should be terrific, and they are likewise fit for gates to gardens or parks, for grottos, fountains, and baths, where elegance of form and neatness of workmanship would be out of character. Delorme, who was exceedingly fond of these cinctures, has employed them in several parts of the Tuileries, covered with arms, cyphers, and other enrichments; but this seems absurd, for they can never be considered in any other light than as parts, which, to avoid expense and trouble, were left unfinished. We likewise find in different parts of the Louvre vermiculated rustics, of which the tracks represent flowers de luce and other regular figures,—a practice still more unnatural than the forementioned, though Monsieur D'Aviler† very gravely tells us that it should always be done with propriety, and express a relation to the owner of the structure; that is, the figures should represent his arms, his crest, motto, cypher, and so forth, as if worms were draughtsmen and understood heraldry.

In the plates of designs for gates, doors and windows, and likewise in those of different compositions, at the end of the book, are given several designs of rustic columns, and other rustic work; all collected from buildings of note in different parts of Europe; and for the manner of executing them, as it cannot well be described, the student is referred to various parts of Somerset Place, to the Horse Guards, the Treasury, the Doric entrance of the King's Mews, the gate of Burlington House, &c.: in all which, the different kinds of rustication are managed with taste and command of the chisel.

De Chambrai, in the introduction to his parallel of ancient and modern architecture, treats the Tuscan order with great contempt, and banishes it to the country, as unworthy a place, either in temples or palaces; but in the

* "Traité d'Architecture" Ordre Toscan. "Des Architectes assez considerés ont quelquefois cerclé la tige de plusieurs ceintures de bossage, comme on en voit au Palais de Luxembourg, et autres lieux de distinction; mais ces sortes d'ornemens rustiques ne sont point du tout à imiter, si ce n'est à des portes de citadelles ou de prison, pour rendre leur entrée affreuse et desagreable. Si neanmoins on peut souffrir ce sortes d'ornemens rustiques en quelques endroits, ce ne doit être que sur des colonnes Toscanes, ou tout au plus sur les Doriques, et jamais sur les autres colonnes plus délicates particulièrement quand elles sont cannelées.—[Ed.]

† "Cours d'Architecture qui comprend les ordres de Vignole," &c., par A. C. D'Aviler, 2 vols. 4to. La Haye, 1730. Tom. i. page 9.

Aug. Char. D'Aviler, born 1653, died 1700, was a native of Paris. He was elected by the French academy one of their travelling students at an early age, and took his departure from Marseilles with Desgodetz and the celebrated Vaillant. The ship in which they sailed was captured by corsairs and carried into Algiers. His captivity lasted sixteen months, during which he designed and executed a mosque at Tunis for the barbarians. Besides the work above mentioned he translated Scamozzi. See Milizia.—[Ed.]

second part of the same work, he is more indulgent, for though he rejects the entablature, the column is taken into favor, " and compared to a queen seated on a throne, surrounded with all the treasures of fame, and distributing honors to her minions, while other columns only seem to be servants and slaves of the buildings they support."

The remainder of this passage, too long to be here inserted at full length, is calculated to degrade and totally to exclude from buildings, the Tuscan order, but by a different mode of employing and dressing the column, to exalt its consequence, increase its majesty and beauty, so as to stand an advantageous comparison with any of the rest. He therefore wishes, in imitation of the ancient architects, to consecrate the Tuscan column to the commemoration of great men and their glorious actions, instancing Trajan's column, one of the proudest monuments of Roman splendour, which is of that order, was erected by the senate and people of Rome, in acknowledgment of his services, and has contributed more to immortalize that emperor than the united pens of all historians. He further instances the Antonine column, likewise erected at Rome, on a similar occasion, in honor of Antoninus Pius, and another of the same sort at Constantinople, raised to the emperor Theodosius, after his victory over the Scythians; both which prove, by their resemblance to the Trajan column, that this sort of appropriation, recommended by him, had passed into a rule among the ancient masters of the art.

I shall not here dispute the justness of M. De Chambrai's remarks, but may venture to affirm that not only the Tuscan column, but the whole order, as represented in the annexed design, which being in fact the production of Vignola and Scamozzi, I may praise without the imputation of vanity, is extremely beautiful,—a useful, even necessary gradation in the art, and for its purposes, inferior to none of the rest.

The Tuscan order, as it conveys ideas of strength and rustic simplicity, is very proper for rural purposes, and may be employed in farm-houses, in barns, and sheds for implements of husbandry, in stables, manèges, and dog-kennels, in greenhouses, grottos, and fountains, in gates of parks and gardens, and generally wherever magnificence is not required and expense is to be avoided. Serlio recommends the use thereof in prisons, arsenals, treasuries, sea-ports and gates of fortified places; and Le Clerc observes*, that though the Tuscan order, as treated by Vitruvius, by Palladio, and some others, ought to be entirely rejected, yet according to the composition of Vignola, there is a beauty in its simplicity which recommends it to notice, and entitles it to a

* Traité d'Architecture, Art. v. Edit. La Haye, 1714, p. 10.—[Ed.]

place both in private and public buildings, as in colonnades and porticos surrounding squares or markets, in granaries or storehouses, and even in royal palaces, to adorn the lower apartments, offices, stables, and other places where strength and simplicity are required, and where richer or more delicate orders would be improper.

In conformity to the doctrine and practice before mentioned, seven diameters, or fourteen modules, have been given to the height of the Tuscan column, a proportion very proper for rural or military works, where an appearance of extraordinary solidity is required; but in town buildings, intended for civil purposes, or in interior decorations, the height of the column may be fourteen and a half, or even fifteen modules, as Scamozzi makes it; which augmentation may be entirely in the shaft, without changing any measures either of the base or capital. Nor need the entablature be altered, for as it is composed of few parts, it will be sufficiently bold, although its height be somewhat less than one-quarter of the height of the column.

OF THE DORIC ORDER.

In the parallel are given three profiles of the Doric order; one of which is taken from the theatre of Marcellus, and the other two are copied by Pirro Ligorio, from various fragments of antiquity in and near Rome. Vignola's second Doric profile bears a near resemblance to the most beautiful of these, and was not improbably collected from the same antique which Ligorio copied, though it must be owned that Vignola has, in his composition, far exceeded the original, having omitted the many trivial, insignificant mouldings with which that is overloaded, and in various other respects improved both its form and proportions.

This profile of Vignola, being composed in a greater style, and in a manner more characteristic of the order than any other, I have chosen for my model, having, in the general form and proportions, strictly adhered to the original, though in particular members I have not scrupled to vary, when observation taught me they might be improved.*

Vignola, as appears by the preface to his rules, supposed that the graceful and pleasing aspect of architectonic objects was occasioned by the harmony and simplicity of the relations existing between their parts, and in composing his profiles he constantly regulates his measures by these simple affinities, imagining the deviations from them in his antique models to proceed rather from the inaccurate execution of the workmen than from any premeditated design in the contriver. To this notion may be ascribed many little defects in the proportions of his mouldings and minuter members, which, though trifling in themselves, are yet, from the smallness of the parts where they happen to be, of consequence, and easily perceivable by a judicious eye. These I have, therefore, endeavoured to correct, not only in this, but in others of his orders, which from their conformity to the best antiques, I have in the course of this work chosen to imitate.†

* The chief alteration is in the cornice. See subsequent note.—[Ed.]

† The author on general principles differs here, not only from Vignola, but from a very large portion of later architects, amongst whom will be found perhaps as intelligent an architect, and one as alive to proportion, as the world ever saw, viz., Sir Christopher Wren, under whose banners, though he in some matters was deficient in good taste, I am not fearful of appearing. See note at page 118. Messer Jacopo

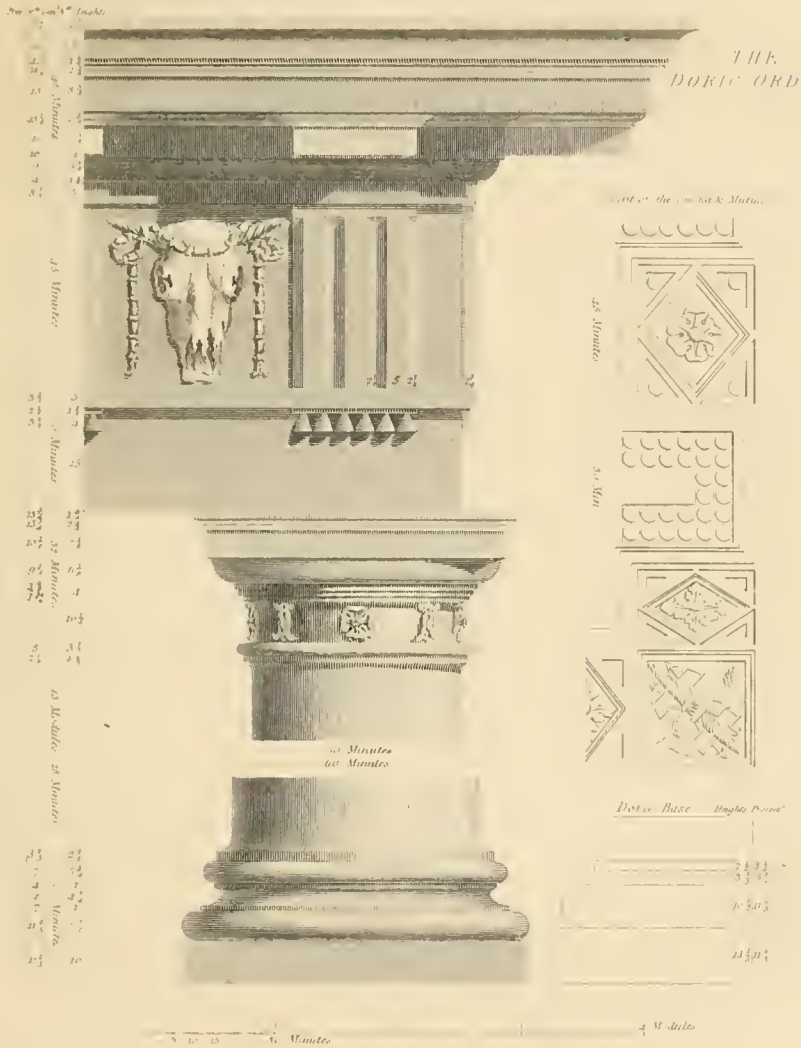
It has already been observed that the real relations subsisting between dissimilar figures have no connection with the apparent, the form and situation of the object viewed ever altering the affinity, and it is a truth too evident to require demonstration. No one will deny, for instance, that the ovolo in the annexed Doric cornice*, viewed in its proper elevation, will appear much larger than the capital of the triglyph under and contiguous to it, though they are in reality nearly of the same dimensions; and if the same ovolo were placed as much below the level of the spectator's eye as it is in the present case above, it is likewise evident that it would appear considerably lower than any flat member of the same height. These things being so, a strict attachment to harmonic relations seems entirely out of the question, since what is really in perfect harmony may, in appearance, produce the most jarring discord†.

Perfect proportion in architecture, if considered only with regard to the relations between the different objects in a composition, and as it merely relates to the pleasure of the sight, seems to consist in this—that those parts which are either principal or essential should be contrived to catch the eye successively from the most considerable to the least, according to their degrees of importance in the composition, and impress their images on the mind, before it is affected by any of the subservient members; yet, that these should be so

Barozzi's preface is too long for insertion here; but the view with which he determined to ascertain the relative proportions of the orders, for his own private use, will explain the whole of his system, and show that he well knew his *mestiere*. "Per potermi appoggiare con fermezza maggiore, mi son proposto innanzi quelli ornamenti antichi delli cinque ordini, quali nelle anticaglie di Roma si vedono, e questi tutti insieme considerandoli, e con diligenti misure esaminandoli, ho trovato quelli, che al giudizio commune appajono più belli, e con più grazia si appresentano agl'occhi nostri; questi ancora avere certa corrispondenza, e proporzione di numeri insieme meno intrigata, anzi ciascun minimo membro, misurare li maggiori in tante lor parti appunto," &c.—[Ed.]

* Pl. Doric Order.

† The argument used by the author does not hold. It is indeed true that in the abstract "the real relations subsisting between dissimilar figures have no connection with the apparent," but it must be remembered that the parts of an order, however dissimilar *inter se*, are still parts of one whole; that each of them ought to have some relation to that whole, and that there must, to make the whole pleasing, be some relation or proportion existing throughout; whether the proportions should be arithmetical, geometrical, harmonical, or sesquialteral, it is needless to discuss in this place. It is, however, quite certain that many of the celebrated and most beautiful structures of this metropolis are designed in sesquialteral proportions: among them the tower and spire of Bow church may be named without fear of contradiction. It is singular that the author, to fortify his opinion, should take the ovolo above the Doric triglyph to argue upon and prove his assertion, because the ovolo is known to be improper, except when placed above the level of the eye of the spectator; or if used below, otherwise than as a crowning member. Who, for instance, could substitute an inverted ovolo, and this is putting the point *pari casu*, for the inverted cyma recta above the plinth of a pedestal? See note p. 103.—[Ed.]


THE
DORIC ORDER
Published by the Proprietors of the Building News, 1860

conditioned as not to be entirely absorbed, but be capable of raising distinct ideas likewise, and such as may be adequate to the purposes for which these parts are designed.

The different figures and situations of the parts may, in some degree, contribute toward this effect; for simple forms will operate more speedily than those that are complicated, and such as project will be sooner perceived than such as are more retired; but dimension seems to be the predominant quality, or that which acts most powerfully on the sense, and this, it is apprehended, can only be discovered by experience, at least to any degree of accuracy. When therefore a number of parts, arranged in a particular manner, and under particular dimensions, excites, in the generality of judicious spectators, a pleasing sensation, it will be prudent on every occasion where the same circumstances subsist, to observe exactly the same arrangement and proportions, notwithstanding they may in themselves appear irregular and unconnected.

In composing the orders and other decorations which are contained in the present publication, this method has constantly been observed, the author having himself, with that view, measured with the utmost accuracy, and not without some danger, many ancient and modern celebrated buildings, both at Rome and in other parts of Europe, strictly copying such things as appeared to be perfect, and carefully correcting others which seemed in any degree faulty; relying therein not alone on his own judgment in doubtful cases, but much on the opinion and advice of several learned, ingenious artists of different nations, with whom he had the advantage of being intimately connected when abroad.

Sensible he is that the extraordinary degree of accuracy which has been aimed at in these compositions is of little consequence to the generality of spectators, who see in the gross and feel by the lump. Nevertheless, as in poesy, music, painting, and indeed in all arts, there are delicacies which, though they escape the vulgar notice, afford uncommon pleasure to persons of enlightened conception, so in architecture this kind of perfection is the source of secondary pleasures, less forcible perhaps, but not always less delightful, than the first. These may be compared to those excited by the energy or graces of language in poetry; by the shakes, swells, inflections, and other artifices of the instrument or voice, in music, which give sentiment and expression to the performance; or in painting, by a judicious choice and artful disposition of the objects, a nice discrimination of the passions, an elegant taste of design, and a spirited, masterly touch of the pencil. To all

but local colour and general resemblance, the unskilful are commonly blind; but the correct eye and ripened judgment derive their chief pleasure from that which the ignorant rarely perceive, and seldom or ever taste.

It may perhaps be objected that the proportions here established, though proper and good on one occasion, may on many others be defective; but this objection will, I flatter myself, have little weight, when it is remembered that the situation of capitals and entablatures with respect to the order of which they are parts is constantly the same, and the points of view more or less distant, according to the size or elevation of the order; and that, consequently, the apparent magnitudes of all their parts will always have very nearly the same proportion to each other, even though they should be exalted to a second or third story.

With regard to bases, indeed, their being placed on pedestals, or immediately on the ground, will occasion some little difference in their appearance; and when they are raised to a second story, their figure and apparent proportions will be considerably altered. Nevertheless it doth not seem necessary, in either of these cases, to vary their dimensions; for in the former of the two, the alteration would be trifling, and in the latter, the object being far removed from the eye, the spectator will rather be occupied in considering the general mass than in examining its parts, which, on account of their distance, cannot be distinctly perceptible.

The height of the Doric column, including its capital and base, is sixteen modules, and the height of the entablature, four modules; the latter of which being divided into eight parts, two of them are given to the architrave, three to the frieze, and the remaining three to the cornice.

In most of the antiques, the Doric column is executed without a base. Vitruvius likewise makes it without one; the base, according to that author, having been first employed in the Ionic order, to imitate the sandal or covering of a woman's foot. Scamozzi blames this practice,* and most of the moderns have been of his opinion, the greatest part of them having employed the Attic base in this order. Monsieur De Chambrai, however, whose blind attachment to the antique is, on many occasions, sufficiently evident, argues vehemently against this practice, which, as the order is formed upon the model of a strong man, who is constantly represented bare-footed, is, according to him, very improper; and "though," says he, "the custom of employing a base in

* Lib. vi. c. 6. "Oltre che ad alcune Colonne, nè egli (Vitruvio), nè altri, non fanno le Basi alla Dorica, e così le Colonne rimangono spedate; tutte cose, che contravengono alla ragione, che lo vuole, e all' opere c'hanno fatto gli antichi più lodati."—[Ed.]

contempt of all ancient authority, has by some unaccountable and false notions of beauty prevailed, yet I doubt not but the purer eye, when apprised of this error, will easily be undeceived, and as what is merely plausible will, when examined, appear to be false, so apparent beauties, when not founded in reason, will of course be deemed extravagant."*

Le Clerc's remarks on this passage are very judicious, and as they may serve to destroy a notion which, soon after our Athenian discoveries, about thirty years ago, was much too prevalent among us, and might, perhaps, in some future hour of extravagance, prevail again, I shall, for the benefit of such as are unacquainted with the original, translate the whole passage. "In the most ancient monuments of this order," says he, "the columns are without bases, for which it is difficult to assign any satisfactory reason. Monsieur De Chambrai, in his Parallel, is of the same opinion with Vitruvius, and maintains that the Doric column, being composed upon the model of a naked, strong and muscular man, resembling a Hercules, should have no base—pretending that the base to a column is the same as a shoe to a man. But I must own, I cannot consider a column without a base in comparing it to a man, but I am, at the same time, struck with the idea of a person without feet rather than without shoes; for which reason I am inclinable to believe either that the architects of antiquity had not yet thought of employing bases to their columns, or that they omitted them in order to leave the pavement clear; the angles and projection of bases being stumbling blocks to passengers, and so much the more troublesome as the architects of those times frequently placed their columns very near each other, so that had they been made with bases, the passages between them would have been extremely narrow and inconvenient. And it was doubtless for the same reason that Vitruvius made the plinth of his Tuscan column round,—that order, according to his construction, being particularly adapted to servile and commercial purposes, where conveniency is preferable to beauty. However this be, persons of good taste will grant that a base not only gives a graceful turn to the column, but is likewise of real use, serving to keep it firm on its plan, and that if columns without bases are now set aside, it is a mark of the wisdom of our architects, rather than an indication of their being governed by prejudice, as some adorers of antiquity would insinuate."†

In imitation of Palladio and all the modern architects, except Vignola, I have made use of the Attic base in this order, and it certainly is the most

* Parallèle, Part i. c. 2.—[Ed.]

† Le Clerc, Traité d'Architecture, Art. v. p. 12.—[Ed.]

beautiful of any, though for variety's sake, when the Doric and Ionic orders are employed together, the base invented by Vignola, of which a profile is annexed, may sometimes be used. Bernini has employed it in the colonnades of St. Peter's, and it has been successfully applied in many other buildings.

The ancients sometimes made the shaft of the Doric column prismatic, as appears by a passage in the fourth book of Vitruvius; and at other times they adorned it with a particular kind of shallow flutings, described from the centre of a square, no interval or fillet being left between them. Of this sort, there are now some columns to be seen in the temples of Pæstum, near Naples, in different parts of Sicily, and in the church of St. Peter in Catenis, at Rome. The first of these manners has not, I believe, been imitated by any of the modern masters; nor is the second very frequent: Scamozzi blames it for its want of solidity;* the projecting angles between the flutings being easily broken, and, if the material be soft, very subject to moulder.

Vitruvius gives to the height of the Doric capital one module;† and all the moderns, except Alberti,‡ have followed his example. Nevertheless, as it is of the same kind with the Tuscan, they should both bear nearly the same proportion to the heights of their respective columns, and consequently the Doric capital ought to be more than one module, which it accordingly is, both at the Coliseum and in the theatre of Marcellus, being, in the former of these buildings, upwards of thirty-eight minutes, and, in the latter, thirty-three minutes high.

In the design here offered I have made the height of the whole capital thirty-two minutes, and in the form and dimensions of the particular members I have deviated but little from the profile of the theatre of Marcellus. The frieze, or neck, is enriched with husks and roses, as in Palladio's design, and as it has been executed by Sangallo,§ at the Farnese Palace in Rome, and by Cigoli,‖ in the Cortile of the Strozzi at Florence, as well as in several buildings

* Parte Seconda, Lib. vi. c. 11.—[Ed.]

† De Ratione Doricâ, Lib. iv. c. 3.—[Ed.]

‡ De Re Ædificatoriâ, Lib. vii. c. 8.—[Ed.]

§ Antonio Sangallo, born in the Florentine territory, died 1546. The Farnese Palace, as high as the great cornice, is a noble monument of his splendid talents. When the building was so far complete, Cardinal Farnese was raised to the holy chair, and being desirous of crowning it with the grandest cornice which could be designed by the architects of the age, he invited them to a competition.—Michael Angelo bore off the laurels, and the cornice remains a surprising effort of his more than wonderful genius. Sangallo was in his day one of the architects of the fabric of St. Peter's, and in that situation had the honor of being a colleague of Rafaelle d'Urbino.—[Ed.]

‖ Luigi Cigoli, a Florentine architect, born 1559, died 1613. This artist designed the pedestal for the statue of Henry IV. as it formerly stood, on the Pont Neuf at Paris.—[Ed.]

of note in this metropolis. The projection of these husks and flowers must not exceed that of the upper cincture of the column.

The architrave is one module in height, and composed only of one fascia and a fillet, as at the theatre of Marcellus: the drops are conical, as they are in all the antiques; not pyramidal, as they are improperly made by most of our English workmen: they are supposed to represent drops of water draining from the triglyph, and consequently they should be cones, or parts of cones, not pyramids.

The frieze and the cornice are each of them one module and a half in height; the metope is square, and enriched with a bull's skull, adorned with garlands of beads, in imitation of those on the temple of Jupiter Tonans, at the foot of the Capitol. In some antique fragments, and in a greater number of modern buildings, the metopes are alternately enriched with these ox-skulls, and with pateras, but they may be filled with any other ornaments of good forms, and frequently with greater propriety. Thus, in military structures, heads of Medusa, or of the Furies, thunderbolts, and other symbols of horror may be introduced; likewise helmets, daggers, garlands of laurel or oak, and crowns of various kinds—such as those used among the Romans, and given as rewards for different military achievements; but spears, swords, quivers, bows, cuirasses, shields and the like must be avoided, because the real dimensions of these things are too considerable to find admittance in such small compartments, and representations in miniature always carry with them an idea of triviality, carefully to be avoided in architecture, as in all other arts. In sacred buildings, cherubs, chalices, and garlands of palm or olive may be employed; likewise doves, or other symbols of moral virtues. And in private houses crests or badges of dignity may sometimes be suffered, though seldom; and indeed never, when they are of such stiff, insipid forms, as stars, garters, modern crowns, coronets, mitres, truncheons, and similar graceless objects, the ill effects of which may be seen at the Treasury, in St. James's Park, and in many other places.

Too much variety in the ornaments of the metopes must be avoided, lest the unity of the composition should be destroyed. It is best never to introduce more than two different representations, which should not consist of above one, or at most two objects each, of simple forms, and not overcharged with ornaments. In the disposition of these, care must be taken to place them with symmetry: those on the right, in correspondence with those on the left. Wherefore, when a triglyph happens to be in the middle of a front, it becomes necessary to couple the middle ones, by filling the two metopes on each side of

the central triglyph with the same sort of ornaments, as is done at the gate of Burlington House, in Piccadilly, distributing the rest alternately throughout the composition, as usual. It is likewise to be observed that ornaments in metopes are not to project so much as they do at Bow church, or at General Wade's house in Burlington gardens, where, from their great relief, they are far more striking than the triglyphs, which ought to predominate, as being essential and principal parts in the composition. Palladio, in his Basilica of Vicenza, has given to the most elevated parts of the ox-skulls and pateras, with which the metopes are filled, very little more projection than that of the triglyph; and in this he has copied the ancients, who seldom or never gave more projection to any ornament than that of the frame or border, in which it was enclosed: as appears by those inimitable fragments in the Villa Medici, and many others in different parts of Rome and elsewhere. The channels of the triglyph on their plan commonly form a right angle, but, to give them more effect, a narrow square groove may be cut in the inner angle, from top to bottom, and quite into the solid of the frieze.

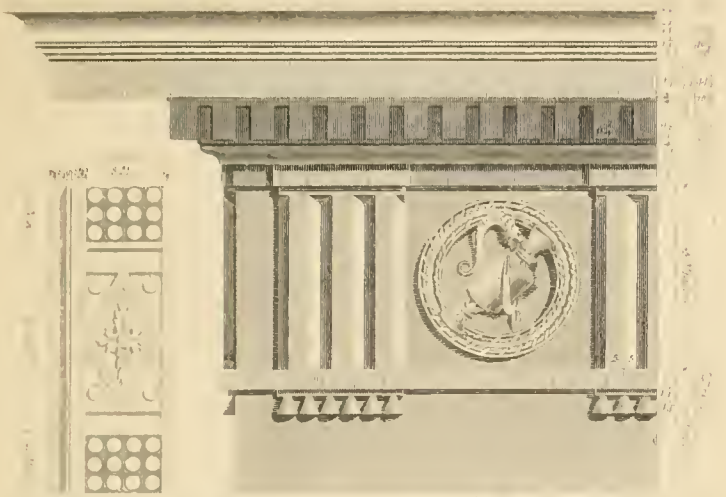
In the cornice I have deviated very little from my original.* Le Clerc, who in his Doric profile has imitated that of Vignola, makes the mutules as broad as the capital of the triglyph; Mr. Gibbs has followed his example, and they have been executed in that manner on a couple of doors to houses on the north side of Lincoln's Inn Fields. But Vignola's method is preferable, who makes them no broader than the triglyph, as it is more sightly, and more conformable to the carpenter's art, in which the width of the rafter never exceeds the width of the beam or joint it stands upon. The ornaments of the soffit are nearly the same as those of Vignola: they should be entirely sunk up, wrought in the solid of the corona, and never drop down lower than its soffit. There is no necessity for cutting them deep: in most of Palladio's buildings they do not enter above two minutes into the corona, and that is quite sufficient.

Vignola's other Doric profile† is in imitation of that of the theatre of Marcellus; in it he has very judiciously pointed out, and in some measure

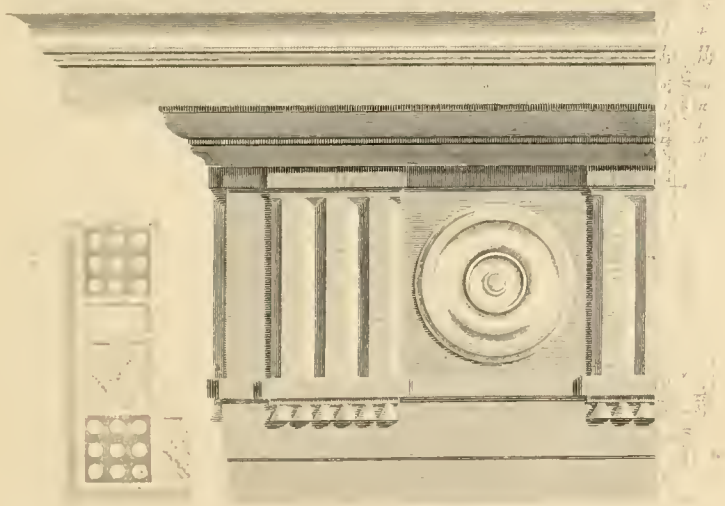
* Palladio, Scamozzi, Alberti, Vignola and Viola have each placed two fasciæ in the Doric architrave, whilst Serlio, Barbaro, Catanco, and our author have only one.—Alberti seems to have been the first of the moderns who used modillions, which certainly improve the profile very much. I am inclined, upon a comparison of Sir W.'s profile with all the rest, to give the preference to that of Vignola, which, with the exception of continuing the margin which encloses the mutules on the soffit of the modillions to the re-entering angles, as given by the author, I think much more complete and beautiful. Vignola's profile is the 9th plate in Stampani's Edition.—[Ed.]

† Plate 10, Stampani Edit.—[Ed.]

Doric Entablature, Imitated from the Theatre of Marcellus.



Doric Entablature of Palladio, Executed in the Basilica at Vicenza.



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SIR WILLIAM CHAMBERS' TREATISE.

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corrected, the faults of the original; but reverence for the antique has made him rather too sparing of his amendments. I have given a design of this profile,* with such further corrections as appeared necessary: the most considerable of them consisting in the enlargement of the dentils, which are neither in the antique model nor in Vignola's profile sufficiently conspicuous to hold their due place in the composition.

At the theatre of Marcellus the ornaments of the soffit are not in a horizontal position, but hang down towards the front of the corona, which, as it appears by Vitruvius, was a common practice among the ancients; and done to imitate the inclination of the rafters. Palladio and Vignola have both adopted this particularity, which D'Aviler supposes to have been first used in order to make the projection of the entablature appear more considerable.† To me it has an exceedingly disagreeable appearance; the whole soffit seems in a falling state: and so far is it from producing the effect which D'Aviler supposes, that it actually makes, as it evidently must, the projection seem less than in reality it is.

Vignola's two Doric entablatures, says D'Aviler, are both of them so elegantly composed, that it is scarcely possible to determine which of them ought to have the preference.‡ The first, which is entirely antique, is the lightest, and consequently properest for interior decorations, or objects intended for near inspection; the other, composed by Vignola himself from various fragments of antiquity, being bolder and consisting of larger parts, seems better calculated for outside works and places where the point of view is either distant or unlimited. On polygonal plans, however, the mutule cornice must be avoided; because the soffits of the angular mutules would form irregular and very disagreeable figures: neither should it be employed in concaves of small dimensions for the same reason; nor in places where frequent breaks are requisite; it being extremely difficult, often impossible, to prevent the mutules from penetrating and mutilating each other, in various unsightly manners. And wherever this cornice is used on a convex surface, the sides of the mutules must be made parallel, for it would be both disagreeable and unnatural to see them broader, and consequently heavier in front than where they spring out of the mutule band.

* Pl. Doric Entablatures.

† De l'ordre Dorique, Vol. i. p. 34. "Ce qui augmente l'apparence de la Saillie, et ce qui avec la mouchette pendante et le Canal refoüillé sous le devant du Larmier rend le profil plus gigantesque et plus noble."—[Ed.]

‡ Ibid. Vol. i. p. 32.—[Ed.]

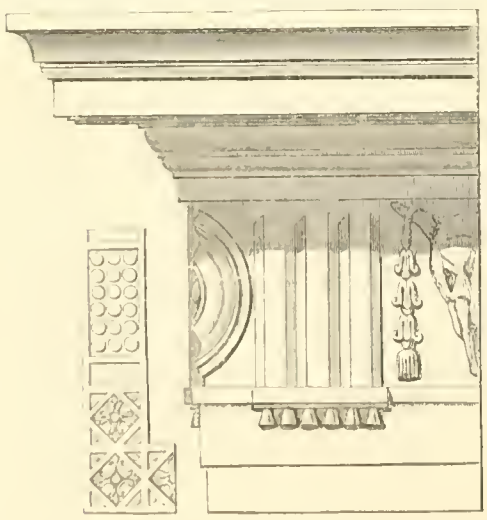
Palladio's Doric entablature is, likewise, very beautiful; I mean as it is executed in the Basilica of Vicenza, where it differs widely from the profile in his book,* and is far preferable thereto.† In the same plate with Vignola's dentil entablature there is a design of it, accurately copied from that building, which may serve as one instance of many to show how little the measures of his book are to be relied upon.

Of all the entablatures, the Doric is most difficult to distribute, on account of the large intervals between the centres of the triglyphs, which neither admit of increase or diminution, without injuring the symmetry and regular beauty of the composition. These constantly confine the composer to intercolumniations, divisible by two modules and a half; entirely exclude coupled columns, and produce spaces which, in general, are either too wide or too narrow for his purposes.

To obviate these difficulties, the triglyphs have often been omitted, and the entablature made plain; as at the Coliseum in Rome, the colonnades of St. Peter's, of the Vatican, and in many other buildings, both at home and abroad. This, indeed, is an easy expedient; but while it robs the order of its principal characteristic distinction, leaves it poor, and very little superior to

* Pl. Doric Entablatures.

† The author's plate, referred to in the preceding note, will be found to differ widely from the profile which is here inserted. The Editor's first intention was to have corrected the plate, but as he professes to give the plates of Sir W. C. precisely similar to those of the first three editions of the work, he preferred the insertion in this note of a correct representation of the entablature, which he made on his examination of the building while at Vicenza. The Doric profile which Palladio exhibits in his first book, is that artist's general idea of what the order should be; of course, in execution, he varied it as taste and circumstances induced him. But in respect of the example before us, if the reader turn to his third book, and compare the plate therein with the profile in the preceding page, he will see no great cause for complaint on the part of our author. On the contrary, allowing for the block engraving of that age not being quite so well managed as now, he will find the profiles singularly correspondent. It must be manifest to every one the least acquainted with the subject, that Sir W.'s guttæ in the external angle of the soffit of the corona are misplaced, and an abuse of which our great master Palladio never could have been guilty. The substitution, too, of the patera for the ox-skull in the metope adjoining the angle, is also absurd—as in that case it would be necessary to *miter* it on the quoin of the frieze. The profile at the Chiericato Palace is nearly the same as the above.—[Ed.]



the Tuscan. The remedy seems desperate, and should never be employed but as a last resource.*

The ancients employed the Doric, in temples dedicated to Minerva, to Mars, and to Hercules, whose grave and manly dispositions suited well with the character of this order. Serlio† says it is proper for churches dedicated to Jesus Christ, to St. Paul, St. Peter, or any other saints remarkable for their fortitude in exposing their lives and suffering for the Christian faith. Le Clerc recommends the use of it in all kinds of military buildings, as arsenals, gates of fortified places, guard-rooms, and similar structures.‡ It may likewise be employed in the houses of generals, or other martial men; in mausoleums erected to their memory, or in triumphal bridges and arches built to celebrate their victories.

I have made the height of the Doric column sixteen modules; which, in buildings where majesty or grandeur is required, is a proper proportion; but in others it may be somewhat more slender. Thus, Vitruvius§ makes the Doric column in porticoes higher by half a diameter than in temples; and most of the modern architects have, on some occasions, followed his example. In private houses, therefore, it may be $16\frac{1}{3}$, $16\frac{1}{2}$, or $16\frac{2}{3}$ modules high; in interior decorations, even seventeen modules, and sometimes perhaps a trifle more; which increase in the height may be added entirely to the shaft, as in the Tuscan order, without changing either the base or capital. The entablature, too, may remain unaltered in all the aforesaid cases; for it will be sufficiently bold without alteration.¶

* Jacopo Tatti, better known by the name of Sansovino, from having been a scholar of Andrea Cantucci da Monte *Sansovino*, gave out the following problem to puzzle the architects of Italy:—*What means must be adopted for the purpose of making the angular metope of the Doric order exactly one-half of the breadth of the other metopes?* They all had a tilt at the question, but without success. Sansovino, Columbus-like, solved it by lengthening the frieze just so much as was wanting to make up the breadth sought, so that it overhung the upper part of the shaft of his columns. A very silly expedient. Sansovino was nevertheless an architect of considerable talent and reputation, and an intimate friend of the celebrated Pietro Aretino. He was born in 1479, and died in 1570.—[Ed.]

† Lib. iv. c. 6.—[Ed.]

‡ Des differens Ordres de Colonnes, Art. v. p. 11.—[Ed.]

§ Lib. iii. c. 2.—[Ed.]

¶ Differing from him on many other points, we do not here agree with our author. Six, or between six and seven diameters in height ought to be considered the normal proportion of the so-named Doric column.—[L.]

OF THE IONIC ORDER.

Amongst the ancients, the form of the Ionic profile appears to have been more positively determined than that of any other order; for in all the antiques at Rome, the Temple of Concord excepted, it is exactly the same, and conformable to the description Vitruvius has given thereof.

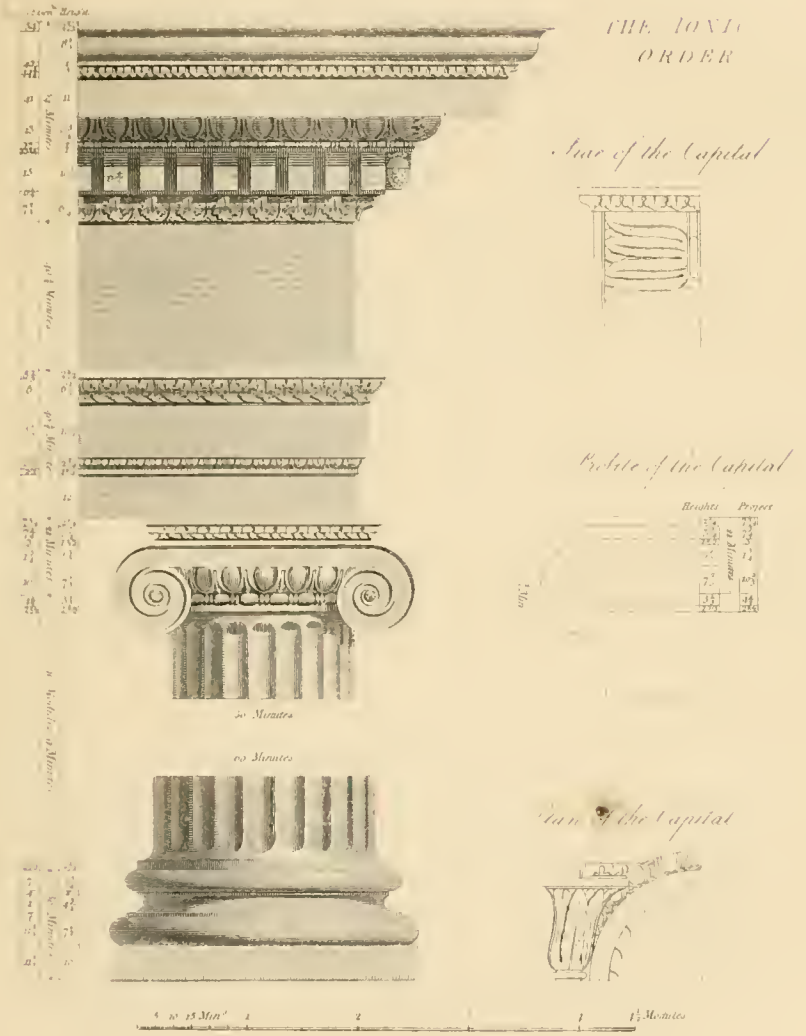
The modern artists have likewise been more unanimous in their opinions upon the subject; all of them, excepting Palladio and his imitators, having employed the dentil cornice, and the other parts of the profile, nearly as they are found in the Coliseum, the Temple of Fortune, and the Theatre of Marcellus.

In Palladio's works we meet with three different Ionic entablatures, all of them very beautiful. The first is the true antique, which he has made use of at the palace of the Porti, and in several doors and windows of the Thiene, and Valmarana palaces, in Vicenza. The second is a very judicious imitation of the entablature in the Temple of Concord, and is executed by him in the upper arcade of the Basilica, in the same city. The third, which is an invention of his own, being the same with that in his book, he has employed, with some small difference, at the Chiericato Palace,* at the Rotunda of Marchese Capra,† and in various others of his buildings in the Vicentine, or at Venice.

In the first plate of the Ionic order, there is a design of the antique profile collected by me from different antiquities at Rome. The height of the column is eighteen modules, and that of the entablature four modules and a half, or one-quarter of the height of the column, as in the other orders, which is a trifle less than in any of the regular antique Ionics. The base is Attic, as in all the antiques, and the shaft of the column may either be plain or fluted, with twenty-four, or with twenty flutings only, as at the Temple of Fortune, of which the plan should be a little more than semi-circular, as it is at the Temple of Jupiter Tonans, and at the Forum of Nerva, because then they are more distinctly marked. The fillet, or interval between the flutes, should not be

* In the city of Vicenza.—[Ed.]

† Not quite a mile southward of Vicenza.—[Ed.]



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Published by the Proprietors of the Building News, 1870

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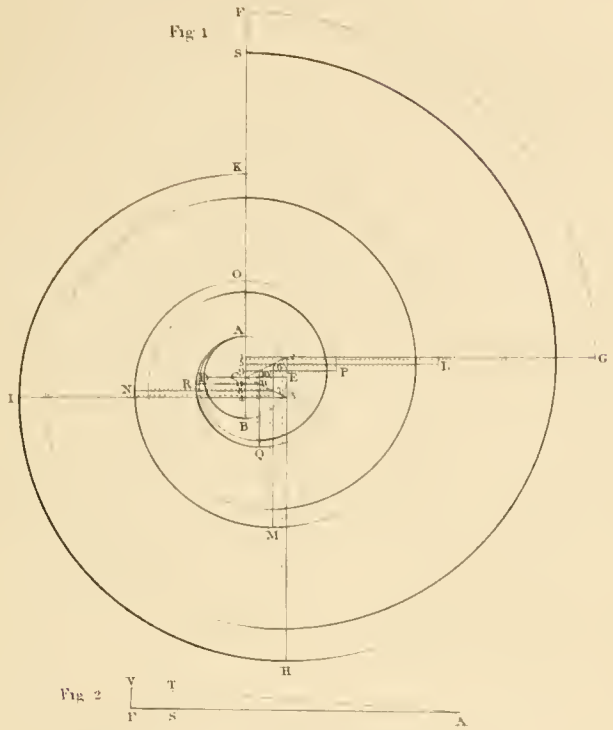

Goldman's Volute Described.

Fig 1 *Draw the Cathetus* F C *whose length must be half a Module, and from the point* C *describe the Eye of the Volute* A E B D, *of which the Diameter is to be 3⅓ minutes, divide it into four equal Sectors by the Diameters* A B, D E, *Bisect the Radii* C A, C B *in* 1 *and* 4, *and on the line* 1 4 *Construct a Square* 1,2,3,4 *from the Centre* C *to the Angles* 2,3 *draw ⅓ Diagonals* C,2 C,3, *and divide the side of the Square* 1,4 *into Six equal parts at* 5,9, C 12,8, *then through the points* 5,9,12,8 *draw the lines* 5,6,9,10,12,11,8,7, *parallel to the Diameter* E D *which will cut the Diagonals in* 6 7 10 11 *and ⅓ points* 1,2,3, 1,5,6,7 8,9,10,11,12 *will be the Centres of the Volute From the first Centre* 1 *with the Interval* 1 F, *describe ¼ Quadrant* F G, *from the second Centre* 2, *with the Interval* 2 G *describe the Quadrant* G H *and continuing the same operation from all the twelve Centres, the Contour of the Volute will be Completed*

Fig 2 *The Centres for describing the fillet are found in this manner, Construct a Triangle of which ⅓ side* A F *is equal to the part of the Cathetus contained between* A F, *and the side* F V *equal to* C 1, *on the side* A F *place ⅓ distance* F S *from* F *towards* A, *equal to* F S *the breadth of the fillet and through the point* S *draw the line* S T *which will be to* C 1 *in the same proportion as* A S *is to* A F, *place this line on each side of the Centre* C *on the Diameter of the Eye* A B *divide it into three equal parts, and through the points of division draw lines parallel to the Diameter* E D, *which will cut the Diagonals* C,2, C 3, *and you will have twelve new Centres, from whence the interior Contour of ⅓ fillet may be described, in the same manner as the exterior one was from the first Centres*

W Chambers *S Porter*

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broader than one-third of their width, nor narrower than one-quarter thereof. The ornaments of the capital are to correspond with the flutes of the shaft,* and there must be an ove or a dart above the middle of each flute. The volutes are to be traced according to Goldman's method,† which is the best. I have given a design of it, with an exact description upon the plate. Perrault prefers Delorme's method of describing it,‡ yet certainly it is not so perfect; for in Goldman's the circular portions that compose the volute have their radii at their junction, in the same straight line, so that they meet without forming an angle; whereas, in that of Delorme, the radii never coincide, and, consequently, no two of the curves can join without forming an angle. The space in Delorme's volute between the first quadrants, in the first and second revolution, is of the same breadth throughout, both the quadrants being described from the same centre; but in Goldman's the space between the revolutions diminishes regularly from the very first. Moreover, Delorme has given no directions for describing the inner spiral, which determines the breadth of the fillet, and which, in his design, is nearly of the same breadth from first to last; but Goldman has taught the manner of describing it, so as to diminish gradually, with the same accuracy as the outward spiral.§

Palladio's volute, differing but little from that of Delorme,‖ has nearly the same defects; and, though Mr. Gibbs has in some measure amended it, yet his likewise is faulty in the breadth of the fillet, which is equal through the greatest part of the first revolution.

Vignola and Scamozzi, Serlio, Alberti, and others have, in their architraves, imitated those of the theatre of Marcellus, and of the Coliseum;

* See page 108.—[Ed.]

† Nicholas Goldman, a native of Breslaw, in Silesia, born 1623, died 1665, was a mathematician of some reputation. His chief works are—"Elementa Architecturæ Militaris," 8vo. 1643.—"De usu Proportionarii Circuli," "De Stylometricis," 1662; and a Treatise on Civil Architecture, published by Sturm in 1696, with many engravings.—[Ed.]

‡ "Architecture de Philibert Delorme," Tom. I. Liv. v. c. 27. "Des Mesures du Chapiteau Ionique, et la Façon comme l'on doit faire ses Volutes."—[Ed.]

§ The author must have misunderstood Perrault, "l'Architecture de Vitruve," &c., 2nd Edit. fol. Paris, 1684, who, in page 93, note 35, differs in some points from both Goldman and Delorme. In another note, 41, page 94, he agrees with Goldman on the correction of a passage in the text of Vitruvius. I cannot help thinking that the volute which Perrault, page 95, has produced, is superior in *tournure* to that which our author has given, and the Frenchman has evolved it by an ingenious reading of the text of Vitruvius, aided by the correction of the German. Philibert Delorme's is clumsy, and it is difficult to conceive how the author could have imagined that Perrault was indebted to him. Goldman's volute becomes too thin in the second revolution.—[Ed.]

‖ Palladio's volute appears to me that which an artist would turn—the other seems fabricated by a boor. Let the student compare them; it will be instructive and advantageous to him.—[Ed.]

having composed them of three fascias distinguished from each other only by small projections. This has but an indifferent effect; the separations so faintly marked are not sufficiently striking; and the architrave is left too destitute of ornaments for the rest of the profile: a defect most striking, whenever the mouldings of the profile are enriched.

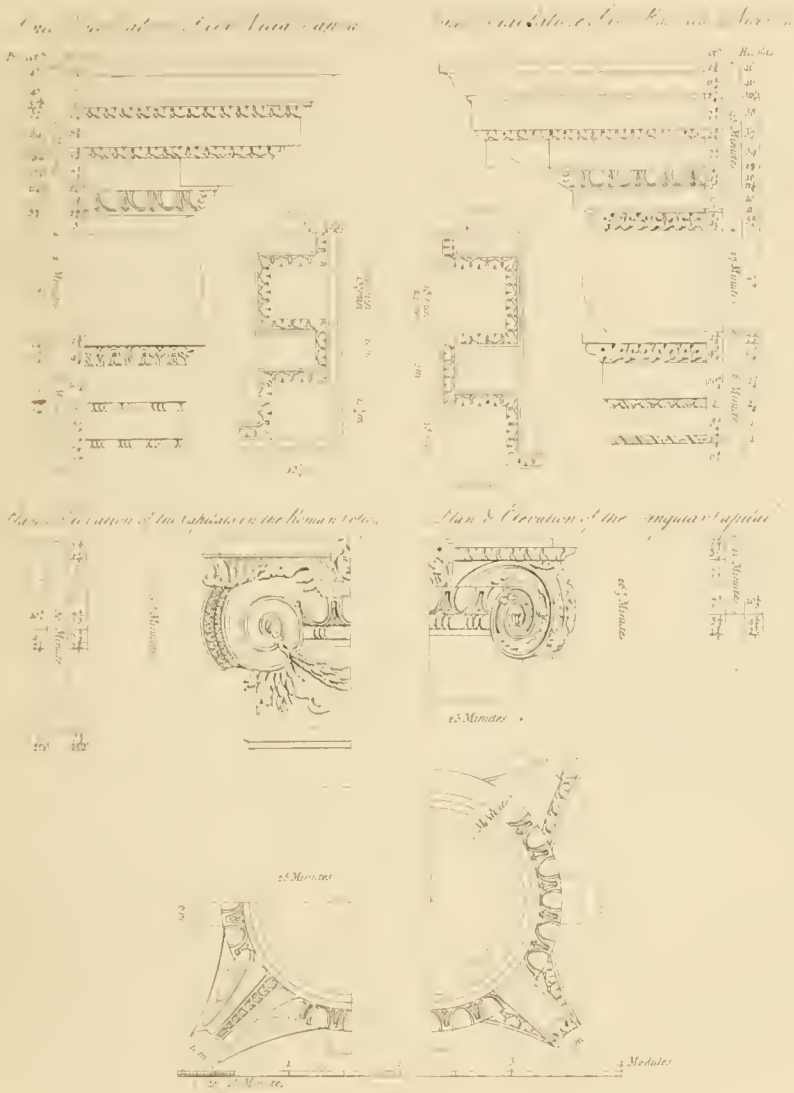
On the other hand, Palladio's and Delorme's architraves appear too rich; being likewise composed of three fascias, separated by mouldings. I have therefore, in this particular, chosen to imitate the profile of the Temple of Antoninus and Faustina, where there are only two fascias, separated from each other by a moulding.

The three parts of the entablature bear the same proportion to each other in this as in the Tuscan order; the frieze is plain, as being most suitable to the simplicity of the rest of the composition; and the cornice is almost an exact copy from Vignola's design, in which there is a purity of form, a grandeur of style, and close conformity to the most approved antiques, not to be found in the profiles of his competitors.

If it be required to reduce this entablature to two-ninths of the height of the column (which, on most occasions, is a proportion preferable to that of one-quarter, particularly where the eye has been habituated to contemplate diminutive objects), it may easily be done, by making the module for the entablature less by one-ninth than the semi-diameter of the column; afterwards dividing it as usual, and observing the same dimensions as are figured in the design. The distribution of the dentil band will, in such case, answer pretty nearly in all the regular intercolumniations; and in the outer angle there will be a dentil, as there is in the Temple of Fortune at Rome.

In interior decorations, where much delicacy is required, the height of the entablature may be reduced even to one-fifth of the column, by observing the same method, and making the module only four-fifths of the semi-diameter.

Of Palladio's profiles, that imitated from the Temple of Concord appears to me the best; its height is equal to one-fifth of the height of the column. The design which I have given of it is closely copied from the Basilica at Vicenza; but it will be more perfect if the frieze be made flat, and its height augmented so as to equal that of the architrave; by which means, the proportion of the entablature to the column will be better; for the relation of one to five is, generally speaking, too small. In the cornice it will likewise be well to add, between the corona and fillet, under the cyma, an ogee of the



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same dimension with that over the modillions. Thus all the parts will be equally rich, and the upper cyma be better supported. This Scamozzi has done in his profile; though, in other respects, his Ionic entablature may be considered as a copy from Palladio; the fillet, being thus sustained by the ogee, may be diminished a trifle.

Palladio's other profile I have copied from the Rotunda of Capra;* its height is likewise one-fifth of the column. The frieze, as in the former design, is low and swelled; but it will be better to raise it to the same height with the architrave, and keep it upright as before directed; for the swell gives it a clumsy form, and, appearing a continuity of the same undulations which compose the architrave and cornice, serves to render the outline of the whole entablature confused and much too abundant in curves. The frieze, when so formed, conveys the idea of a piece of timber used without being hewn, as was the practice of ruder times among the Greeks, and cannot with propriety be introduced in a finished work.

In the antique, there are few examples of these swelled friezes. Palladio probably took his hint from the Temple of Bacchus, near Rome, where the swelled frieze has been used in a Composite order; or, perhaps, from the Basilica of Antoninus, where it has been employed in a Corinthian: with little success at the last, and with much less at the first, of these places; for as the columns are there insulated, and the profile is marked at the four angles, the deformity becomes so much the more conspicuous; and, notwithstanding Palladio's partiality to this form of frieze, which so frequently recurs in most of his works, it seldom or never can be introduced with success but on doors or windows, where the profile of the architrave is not marked under it; there, indeed, the swell forms a good contrast with the upright jambs, and has the further advantage of contracting the spread of the cornice, which, in narrow intercolumniations, is very convenient; and, in most cases, may prevent the licentious practice of making the frieze and cornice no wider than the aperture of the door or window, and supporting them on each side with a sort of scroll, as at the Sorbonne in Paris, and at the Mansion House in this city.

Palladio, in both these profiles, has enriched the soffit of the corona with roses, which are here omitted, as in most cases they ought to be. However, when the column is fluted, and the rest of the composition much adorned, they may and should be introduced, care being taken to proportion the panels, and

* Villa del Marchese Capra above mentioned. This villa, at Vicenza, is familiarly called La Rotenda.—[Ed.]

other parts surrounding them, in the same manner as if the order were Corinthian or Composite.

The antique Ionic capital differs from any of the others; its front and side faces are not alike. This particularity occasions great difficulty wherever there are breaks in the entablature, or where the decoration is continued in flank as well as in front; for either all the capitals in the flank must have the baluster side outward, or the angular capitals will have a different appearance from the rest, neither of which is admissible. The architect of the Temple of Fortune at Rome* has fallen upon an expedient which, in some degree, remedies the defect. In that building the corner capitals have their angular volutes in an oblique position, inclining equally to the front and side, and offering volute faces both ways. Wherever persons are violently attached to the antique, or furiously bent on rejecting all modern inventions, however excellent, this is the only means to gratify them; but when such is not the case, the angular capital invented by Scamozzi,† or imitated and improved by him from the Temple of Concord, or borrowed from some modern compositions extant in his time, ought to be employed; for the distorted figure of the antique capital, with one volute straight and the other twisted, is very perceptible, and far from being pleasing to the eye.

Annexed is a design of Scamozzi's capital, and another of a very beautiful one, executed in St. Peter's, of the Vatican; probably composed by Michael Angelo. Similar capitals may also be seen in the church of the Roman College, and in various other buildings at Rome.

In this order I have employed the Attic base. Of the antique base described by Vitruvius, and used by Vignola and Philibert Delorme in their Ionic orders, and by Sir Christopher Wren in some parts of St. Paul's, I think there is no example among the antiques; and being universally esteemed a very imperfect production, I have not even given a design of it.

As the Doric order is particularly affected in churches or temples dedicated to male saints, so the Ionic is principally used in such as are consecrated to females of the matronal state. It is likewise employed in courts of justice, in libraries, colleges, seminaries, and other structures having relation to arts or letters; in private houses and in palaces, to adorn the women's apartments; and, says Le Clerc, in all places dedicated to peace and tranquillity. The ancients employed it in temples sacred to Juno, to Bacchus, to Diana, and other deities, whose dispositions held a medium between the severe and the effeminate.

* This is, however, far from a pure example.—[Ed.]

† This is no invention of Scamozzi—See Stuart's Athens, Temple on the Ilissus, and of Minerva Polias.—[Ed.]

It is difficult, if not impossible, to agree with those who refer us to certain columns at Persepolis, as exhibiting the prototype of the Ionic capital; since what is pointed out as resemblance, strikes as antipathetic difference. As regards general form and character, there is not the very slightest similarity, whatever, between the supposed Persepolitan parent and the offspring attributed to it; still less is there any with respect to taste; the former being as uncouth and unmeaning and capricious in its configuration, as the other is *ben inteso*, eumorphic and graceful. A formal and minute contrast between them would certainly be amusing, possibly instructive also; but it must not be looked for here. Suffice it then to observe, that what are imagined to have been prototypic of the so-called Ionic capital are no more than four little bits of detail stuck upon the sides of an upright square member super-imposed upon a circular shaft and capital. The question then is, by what process of æsthetic alchemy came those comparatively insignificant, certainly whimsical, adjuncts to be transmuted into the refined elegance of the Greek Ionic capital? The distance between the hypothetically assumed original and the fully developed Ionic capital is so great that there must have been very many intermediate stages of transition ere the metamorphosis was completed; yet, not a single one of them can now be traced, or, at any rate, not one is produced. Admitting, however, for the nonce, that the germ of the *Voluted* capital is to be plainly detected in the Persepolitan example, such *fact* is tantamount to irrefragible proof that it is possible to seize upon a casual hint, however slight, or however rude, and shape out from it some untried, yet eminently successful form of the beautiful.

It has sometimes been alleged as an imperfection in the Ionic or *Voluted* capital, that it is irregular in plan; since, instead of presenting four faces, corresponding with those of the abacus, it has only two, whose flanks, or "baluster" sides, as they are termed, are altogether different in conformation, both vertically and horizontally. Such is undeniably the case; yet, to say nothing of the variety of appearance so produced, what exquisite symphony of contrasted curved lines! The face of the Ionic capital, whether Asiatic or Attic, exhibits as charming a disposition of flowing lines as can well be conceived; and completely different as it is in form, the so-called "baluster" or pulvinated side of the capital contributes to the general expression of animated and graceful flexibility; for, while its horizontal section shows concave curvature, its vertical section has a convex surface. The marked dissimilarity between the sides and the faces of the capital is by no means displeasing—most assuredly does not partake of capriciousness, the entire composition being admirably well *motived*, and thoroughly logical. We may suppose the problem to have been how to expand the capital horizontally in front, without, at the same time, enlarging the abacus, which had to be accommodated to the soffit of the architrave; and, never was difficult æsthetic problem solved more successfully. The lateral expansion of the face produces luxuriant fulness without heaviness; while the volutes are forcibly relieved by shadow—one of them by that which it casts upon the shaft of the column.

One rather enviable peculiarity of the Ionic or Voluted capital is that it admits of being so shaped as to be perfectly regular, and have four faces all alike, instead of only two. Such form of the capital does not, indeed, appear to have been adopted by the Greeks, but they showed with what facility it might be produced, when they occasionally turned the volute diagonally at the external angles of a portico, in order to obtain two similarly-shaped adjoining faces. It will, perhaps, then be said that though they had recourse to such treatment of the capital, as an expedient to accommodate it to that particular situation, they also rejected it, when not absolutely required for obviating what would have been an offensive irregularity, had the *baluster side* of a capital shown itself in the same range with the *faces* of other capitals on the return or flank of the building. Why the Greeks did not avail themselves of the felicitous invention they had hit upon, and carry it out much further, is rather surprising and difficult to be accounted for; at the same time, we ought, perhaps, to be grateful to them, for having been content to indicate a new phase of the beautiful in the Voluted capital, leaving to those who came after them to apply it without scruple, as being of decidedly Greek origin.

Existing and well authenticated examples of the antique, afford tolerably convincing proof that the Greeks allowed themselves considerable latitude in the treatment of the orders. So far from adhering to ready-cut and dry proportions and detail, they sometimes ventured upon untried shapes of beauty, nothing less than shocking to orthodox Vitruvianists, and the adherents of Vignola, and other architectural arithmeticians.

Of the Ionic, we have a most remarkable variety—undeniably, too, of the best period of Greek art, in the attached columns within the temple of Apollo Epicurius at Bassæ; than which nothing can be at once more awfully heterodox and more charmingly piquant. Not the capital alone, but the entire column, with its widely expanded base, and the very peculiar fluting or striating of the shaft, show consummate artistic study, and genuine artistic feeling.

In the hands of the Romans, and their modern Italian followers, the Voluted capital sadly degenerated. It completely lost its former expression of flowing gracefulness combined with vivifying energy; and it was at length tamed into such feebleness and insipidity, that its original character was all but entirely effaced. The volutes themselves were sometimes reduced to such utter insignificance as scarcely to manifest themselves; so that from being one of the most plastic of those three *classes*, which we now call orders, that form of capital, quite lost all its original æsthetic raciness of flavour.

It is almost exclusively the prerogative of the Ionic capital, that it admits of most decided and strongly marked differences, not only as regards its general configuration and plan, but with respect to various particulars of detail. It can, for instance, either dispense with or admit of a *necking*, which may, again, be either plain or carved; and in the latter case, it affords very great, almost unlimited, variety of ornamentation, so that there is no necessity for adhering to the precedent of the Greek "honeysuckle." Had the Voluted capital no other power of elasticit , than that of enlarging itself, at will, by the addition of a necking, even that alone would be a most enviable privilege; but in addition to those already indicated, it possesses several other elements of diversified expression and design.—[W. H. L.]

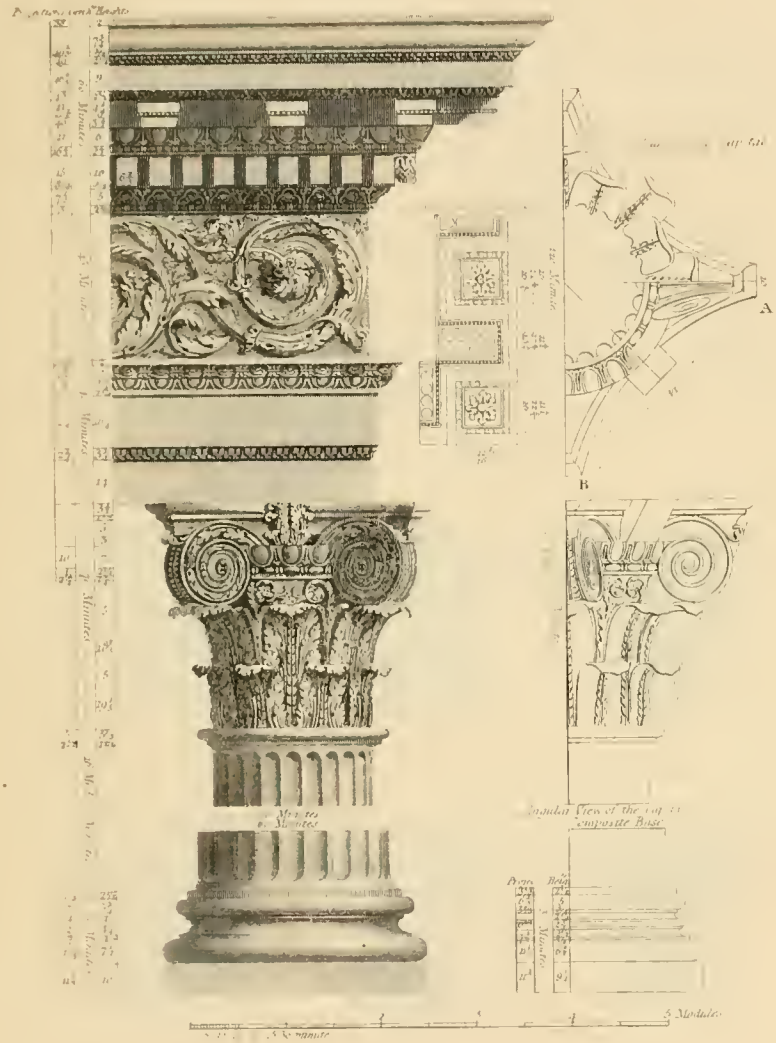
OF THE COMPOSITE ORDER.

Strictly speaking, the ancients had but four orders; the Composite was not considered by them as a distinct production. Vitruvius expressly tells us, Book IV., chap. 1, that on Corinthian columns other capitals of various kinds were employed, which nevertheless ought not to change the names of the columns, because their proportions remained still the same.*

The moderns, however, have ranked the Composite with the four orders mentioned by Vitruvius, having, among the great number of different Composite capitals to be met with in the remains of antiquity, chosen for their model that which has been used in the triumphal arches, in the Temple of Bacchus and at the Baths of Dioclesian: rather, I believe, as agreeing most with the description of Vitruvius, who observes that these capitals were composed of the Ionic, Doric, and Corinthian, than from any preference in point of beauty to many others.

* On which passage Perrault, in his translation of Vitruvius, adds the following note:—"Ceey s'entend à mon avis du Chapiteau de l'Ordre Composite qui est fait de l'assemblage des parties des autres Chapiteaux, comme de celle de l'Ionique dont il emprunte l'Echine et les volutes, et de celles du Corinthien dont il a les feuillages. Ceux qui pretendent avec Philander que Vitruve n'a point parlé de l'Ordre Composite, se fondent sur ce qu'il a dit que la diversité des ornemens du chapiteau, ne change point l'espece de la colonne, comme si la difference specifique des colounes consistoit dans la proportion de leur hauteur, à comparaison de leur grosseur: mais cette raison ne doit point empescher qu'il ne soit vray de dire que Vitruve a traité de l'Ordre Composite aussi-bien que du Corinthien, puisque selon Vitruve l'Ordre Corinthien n'est different de l'Ionique que par le chapiteau, et qu'il est vray que le seul changement des ornemens du chapiteau peut faire un Ordre different, bien que la proportion de toute la colonne ne soit en rien changée: car les Ordres Composites qui nous restent des Anciens, tels que sont ceux de l'Arc de Titus et de celuy de Verone, n'ont rien dans leurs colonnes qui soit different de l'Ordre Corinthien que les ornemens du chapiteau. Cependant Philander dit que l'Ordre Composite n'a esté introduit que long-temps après Vitruve; bien que l'on tienne que le Baptistere de Constantin qui est d'Ordre Composite, a esté basty des ruines d'Edifices tres-anciens, et que le Temple de la Concorde dont on voit encore des restes à Rome, a esté fait par Camillus qui vivoit long-temps avant Vitruve: Or les colonnes de ce Temple tiennent de l'Ionique et du Dorique, ce qui les peut faire passer pour Composites: si ce n'est que Philander entende par Ordre Composite un certain Ordre reglé, qui est celuy qu'on appelle autrement Italique, et non pas tout ce qui participe de plusieurs autres Ordres: ce qui fait que quelques-uns nomment ces Ordres *Composez*, qui peuvent estre infinis, et les distinguent du *Composite*, qui est un Ordre fixé, et qui a une figure et des proportions certaines et établies dans un grand nombre de fameux Edifices."—[Ed.]

THE ROMAN OR COMPOSITE ORDER



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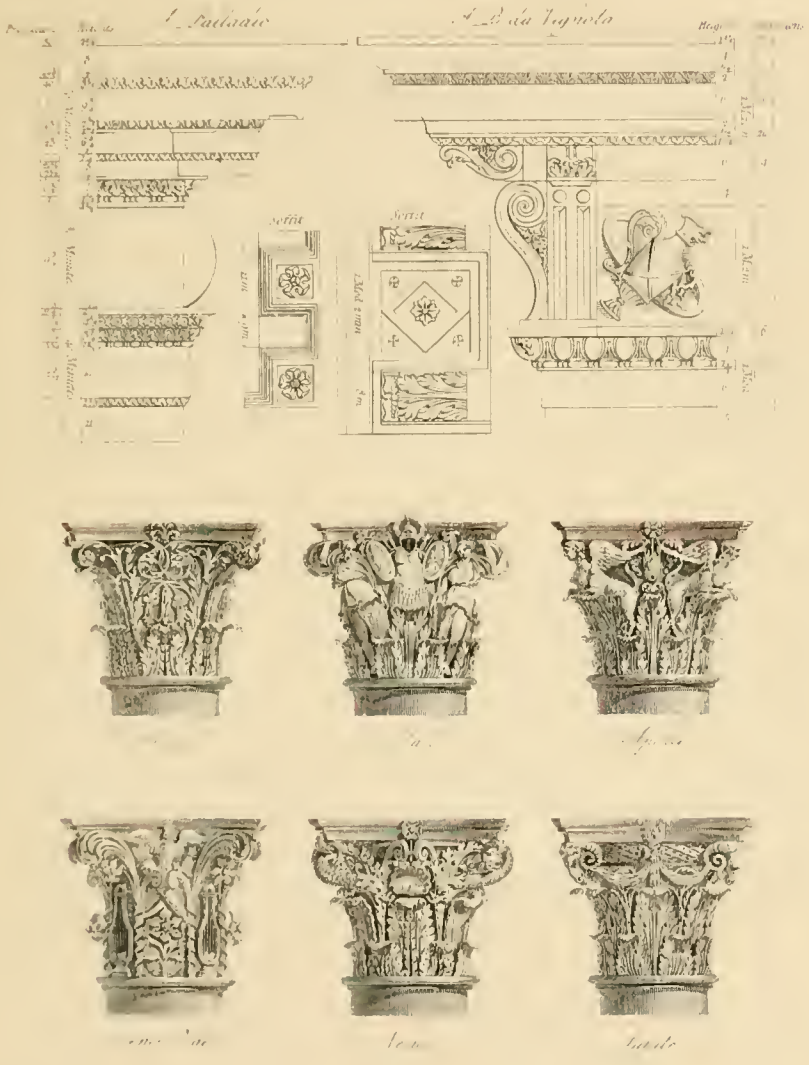
Composite Entablatures & Capitals



Published by the Proprietors of the Building News, 1860

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Neither doth it appear that the ancients affected any particular form of entablature to this order; sometimes they made the cornice entirely plain, as in the Temple of Bacchus; at others, enriched with dentils, and differing very little from the Ionic, as in the arch of Septimius Severus; and in the arch of Titus there are both dentils and modillions, the whole form of the profile being the same with that of the Corinthian, as it is executed in most of the antiques at Rome and elsewhere.

The modern architects have varied more in this than in any other of the orders. Abandoned, as De Chambrai* observes, by their guide Vitruvius, and left entirely at large, they have all taken different paths, each following the bent of his own particular fancy. Among them, Serlio has been least successful, having chosen for the model of his entablature that of the fourth order of the Coliseum, a composition too clumsy, even for a Tuscan order. Delorme, however, has followed his example, and mistaken the columns of the fourth order of the Coliseum, which are Corinthian, for Composite.

Palladio, in his profile, has imitated the cornice of the frontispiece of Nero, and corrected its defects with much judgment. His architrave is likewise taken from the same building, but he has omitted its beautiful frieze, and substituted in its place a swelled one, similar to that of the Basilica of Antoninus. His whole entablature is too low, being only one-fifth of the column, and it is remarkable, that though he has made the column more delicate than in the Corinthian order, yet his entablature is made far more massive, being composed of fewer and much larger parts. In the design given on the second plate of the Composite order, Palladio's measures have been closely observed; but if the frieze were augmented, so as to raise the entablature to two-ninths of the column, made upright, and enriched with ornaments, it would be more perfect, and might be employed with success in works of large dimensions, which require to be seen from a considerable distance; but for interior decorations, or in places where much delicacy is required, the composition is somewhat too massive.

Palladio's capital and base are imitations from the arch of Titus. The latter of them is designed without a plinth, as it is executed in the Temple of Vesta at Tivoli, and joined to the cornice of the pedestal by a slope, which not only has a bad effect, but is in itself defective, because the base is thus divested of its principal member, and rendered disproportionate.†

* Parallèle—Part ii. c. 4.—[Ed.]

† Where the column rises from a deep plain pedestal without cornice or base, the practice which our author condemns is very far from being offensive or disagreeable.—[Ed.]

Vignola's Composite has nothing in it remarkable. The architrave differs but little from that of the frontispiece of Nero, and the cornice is nearly the same with that of his Ionic order, the principal difference consisting in the transposition of some mouldings, and enlargement of the dentils; both which seem rather alterations for the worse than improvements.*

Scamozzi's entablature being, like Palladio's, only one-fifth of the column and much divided, has a trifling appearance. The cornice, however, is, upon the whole, well composed, and in great measure imitated from that of the third order of the Coliseum; the capital is much like Palladio's, and the base is Attic, enriched with astragals, as at the Basilica of Antoninus.

The design which I have given in the first plate of the Composite order, is an invention of my own, in which I have attempted to avoid the faults, and unite the perfections, of those above mentioned; how far with success is left to the reader's determination, and, at any rate, recourse may still be had to Palladio, Scamozzi, or Vignola, as heretofore. The height of the column is twenty modules, that of the entablature five; the base is Attic, and its measures are the same as in the Doric or Ionic orders, but, as the module is less, all its parts are of course proportionably more delicate. The shaft is enriched with flutings, which may either be to the number of twenty or of twenty-four, as on the Ionic column; for there is no reason why, in different orders, their number should either be augmented or diminished; the module being less, the flutes will likewise be less, and correspond exactly with the character of the rest of the composition.

The capital is of the kind which all the moderns have employed in this order, being enriched with leaves of the acanthus, as all the antique capitals of this sort are. With regard to the method of tracing it, few directions will suffice, for the designs are exactly drawn and figured. The curvatures of the abacus are described from the summits of equilateral triangles; the projection of the volutes is determined by a line drawn from the extremity of the astragal to the extremity of a horn of the abacus; and the projection of the leaves is determined by another line drawn parallel to that from the fillet, under the astragal.

The manner of executing both these and all other enriched capitals in this city is, generally speaking, bad. I do not, however, mean to accuse our English workmen of incapacity; many of them are excellent, and in neatness

* I nevertheless prefer Vignola's as well as Scamozzi's capitals to the profile which our author has given; that of the former is far more elegant in its form as well as in the details. But Vignola's entablature is not in *tone* with his capital; the want of modillions renders its aspect too meagre and plain.—[Ed.]

of execution out-do, perhaps, those of any other country; but, sometimes from the parsimony of their employers, and in some degree, perhaps, for want of thorough skill and facility in design, their performances are often insipid, without intention or effect, and by no means expressive either of the taste or intelligence of the performer.

Many even of our greatest architects have too much neglected the detail, having employed their attention wholly on the general disposition of their compositions. This neglect, though authorised by great examples, ought by no means to be imitated. It is the business of the architect to attend to the minutest objects, as well as to the most considerable. If the entire execution of the fabric be left to his direction, the faults that are committed will, of course, be stated to his account, and therefore it will be prudent in him to select the ablest workmen, and to furnish them with proper models and precise instructions, in which he will show the extent of his capacity, and distinguish himself from the common herd of those who, without due qualifications, assume the title of architects. The most masterly disposition, incorrectly executed, can only be considered as a sketch in painting, or as an excellent piece of music miserably murdered by village fiddlers, equally destitute of taste and powers of execution.

Care must be taken in Composite as well as in Corinthian capitals, that the feet of the lower leaves do not project beyond the upper part of the shaft of the column, as at St. Carlo in the Corso* at Rome, and at the Banqueting-house in London; for nothing can be uglier. Neither are these leaves as they mount to bend forwards, as in many of the antiques, and in some modern buildings, because they then hide a considerable part of the upper row of leaves, and give a stunted disagreeable form to the whole capital. The different divisions of the acanthus leaf, and bunches of olive or parsley which compose the total of each leaf, must be firmly marked, and massed in a very distinct manner; the stems that spring from between the upper leaves are to be kept low upon the vase of the capital while rising between the leaves, then spring gradually forwards, to form the different volutes; and the ornaments, which sometimes are used to adorn the sides of the angular volutes, are never to project beyond the fillets between which they are confined. These are all the directions that well can be given in writing, but those who would excel in ornamental works of this kind or any other, must consult the foliages and

* St. Carlo in the Corso was built at the expense of the people of Lombardy about 1612, on the designs of Onorio Lunghi and Pietro da Cortona. The chapel in the western transept, by Paolo Posi, is one of the most magnificent in Rome.—[Ed.]

flowers of nature, the buildings, ancient or modern, in which they have been executed with care and judgment. The Ionic, Composite, and Corinthian capitals to be seen in various parts of Somerset Place, were copied from models executed under my direction at Rome, and imitated, both in point of forms and manner of workmanship, from the choicest antique originals. They may serve as guides to such as have had no opportunity of examining the buildings from which these models were collected.

The parts of the entablature bear the same proportion to each other as in the Ionic and Tuscan orders. The architrave is nearly of the same form with those of Palladio and Vignola, and that of the Basilica of Antoninus. The frieze is enriched with foliages, in imitation of those on the frieze of Nero's frontispiece, of which the most prominent parts should never project more than doth the uppermost moulding of the architrave under them.

The cornice is imitated from Scamozzi, and differs from the Corinthian only in the modillions, which are square, and composed of two fascias. The soffit of the intervals between the dentils must be hollowed upwards behind the little fillet in front, as they are in most of the antiques, which occasions a dark shade that marks the dentil more distinctly; and the same method must be observed in the Ionic and Corinthian orders, for the same reason. The roses in the soffit of the corona are not to project beyond its horizontal surface, and care must be taken not to vary them so much as at St. Peter's of the Vatican, because the unity of the composition suffers thereby; the modillions or dentils might, with almost as much propriety, be varied. It will be proper, therefore, in small compositions, to make them all alike, as they are in most of the antiques; that so they may not strike nor occupy the attention of the beholder as objects for distinct contemplation, but as parts of one great whole. In larger compositions, they may be of two kinds, but similar in outline and dimension, which occasions more variety, yet without confusion; for then the images succeed each other so rapidly, and are from their similitude, so instantaneously comprehended, that the third impression takes place before the first is in any degree obliterated; so that nearly the same effect is produced as by a continued succession of the same object.

But though this variety be practised, and is to a certain degree allowable, in small objects which the eye peruses at a glance, or in such as, being merely accessory, may or may not be introduced, and do not affect the general outline or bent of the composition, yet it is by no means to be tolerated in columns and other principal or essential parts, which, from the number of their constituent points, are not conveyed to the mind at once, either with ease or

perfect clearness, and therefore, if varied, cannot fail of exciting confused ideas.

In the fourth book of Palladio we find, among other ancient temples, one, of which the portico consists of four Corinthian columns and two pilasters. The pilasters are fluted in a perpendicular direction; two of the columns are fluted spirally, and the other two have the shafts covered with laurel leaves—a variety absurd as unpleasing, which totally destroys the general effect of the composition, and conveys no idea but that of a structure made up of discordant fragments, as they happened to come in the builder's way.*

The Romans used the Composite order more frequently in their triumphal arches than in any other buildings; meaning, as Serlio supposes,† to express their dominion over those nations that invented the orders of which this is composed. It may, says Le Clerc,‡ be used with propriety wherever elegance and magnificence are to be united, but it is more particularly adapted to buildings designed to commemorate signal events, or celebrate the virtues and achievements of conquerors and legislators, because the capitals and other ornaments may be composed of emblems and of allusive representations agreeable to the custom of the ancients, as appears by very many fragments of capitals and other members of architecture scattered about in different parts of Rome and elsewhere. Some of these are represented in the second plate of the Composite order, and more may be found in the works of Montano,§ Le Clerc, Piranesi, and others, of whose works the reader will find a catalogue in the *ABECEDARIO pittorico.*‖

The Composite entablature may be reduced to two-ninths of the column, which, to avoid fractions, I shall call four modules and a half, by making the module only nine-tenths of the semi-diameter, and observing the same measures as are figured in the design, and there then will be a dentil in the outward angle, as in the Ionic order. It may likewise, if required, be reduced to one-fifth, by making the module four-fifths of the semi-diameter; though, in cases

* This is the small temple at Trevi, between Foligno and Spoleto. Palladio thus apologizes for its *bizarrerie*:—"Gli Antichi in simil sorte di edificj, e massime nei piccioli, posero grandissima diligenza nel polire ciascuna parte, e far loro tutti quegli ornamenti, che fossero possibili, e che stessero bene; ma nelle fabbriche grandi come Anfitheatri, e simili, polirono solamente alcune particelle, lasciando il rimanente rozzo per schifare la spesa," &c. Lib. iv. c. 25.—[Ed.]

† Libro iii. page 88, Venice Edit. of 1619.—[Ed.]

‡ Traité d'Architecture, Art. v. page 14.—[Ed.]

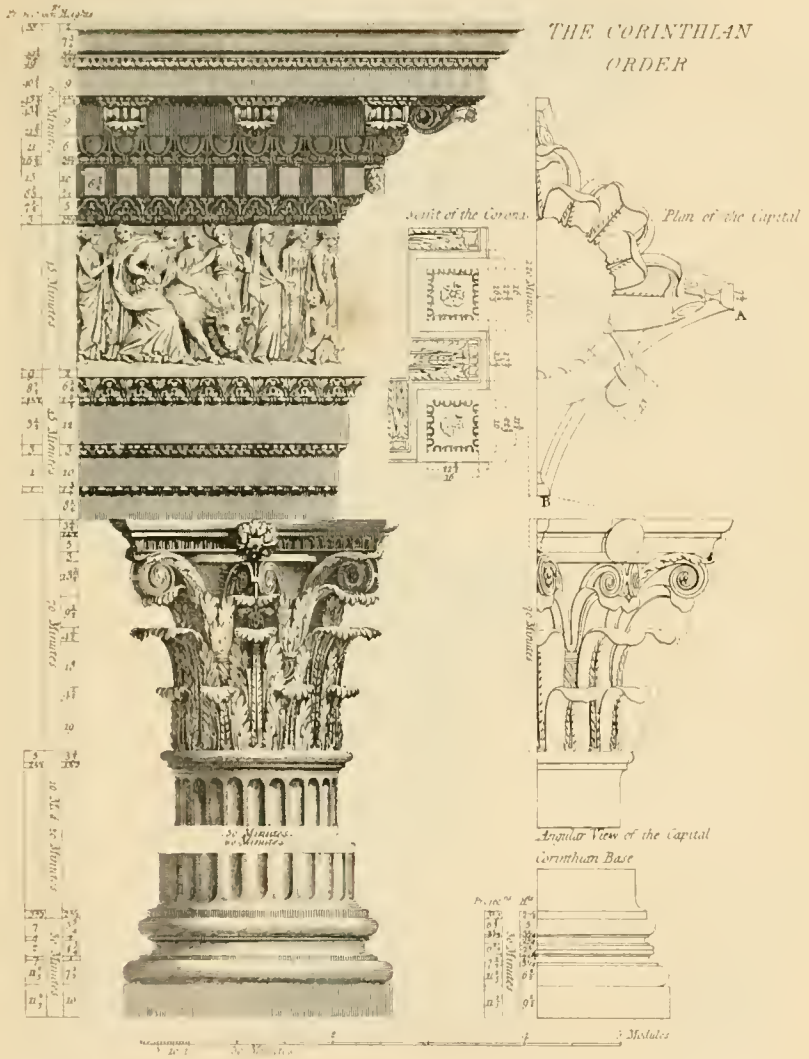
§ Montano (Giov. Bat.). "Li cinque Libri di Architettura." Fol. Roma, 1691. There was an edition of this book in 1684.—[Ed.]

‖ Orlandini (Fr. Pellegr. Ant.): Abecedario pittorico, nel quale sono descritte le vite degli antichissimi pittori, scultori ed Architetti, &c. 4to. Venezia, 1753.—[Ed.]

where it may be necessary to diminish so much, it will always be better to employ the Ionic cornice, which, being composed of fewer parts, will still retain an air of grandeur, notwithstanding the smallness of the general mass.

Most authors give to the Composite order the last place, as being last invented, and a compound which, of course, ought to be preceded by all the simples. I have, however, followed Scamozzi's arrangement, his appearing to me the most natural; for his orders succeed each other according to their degree of strength, and in the progression that must absolutely be observed whenever they are to be employed together.

Pl. 12



W. Collins del. W. Chambers inv. W. Lowry & H. Moses sc.

Published by the Proprietors of the Building News, 1860.

SIR WILLIAM CHAMBERS' TREATISE.

To follow page 166.

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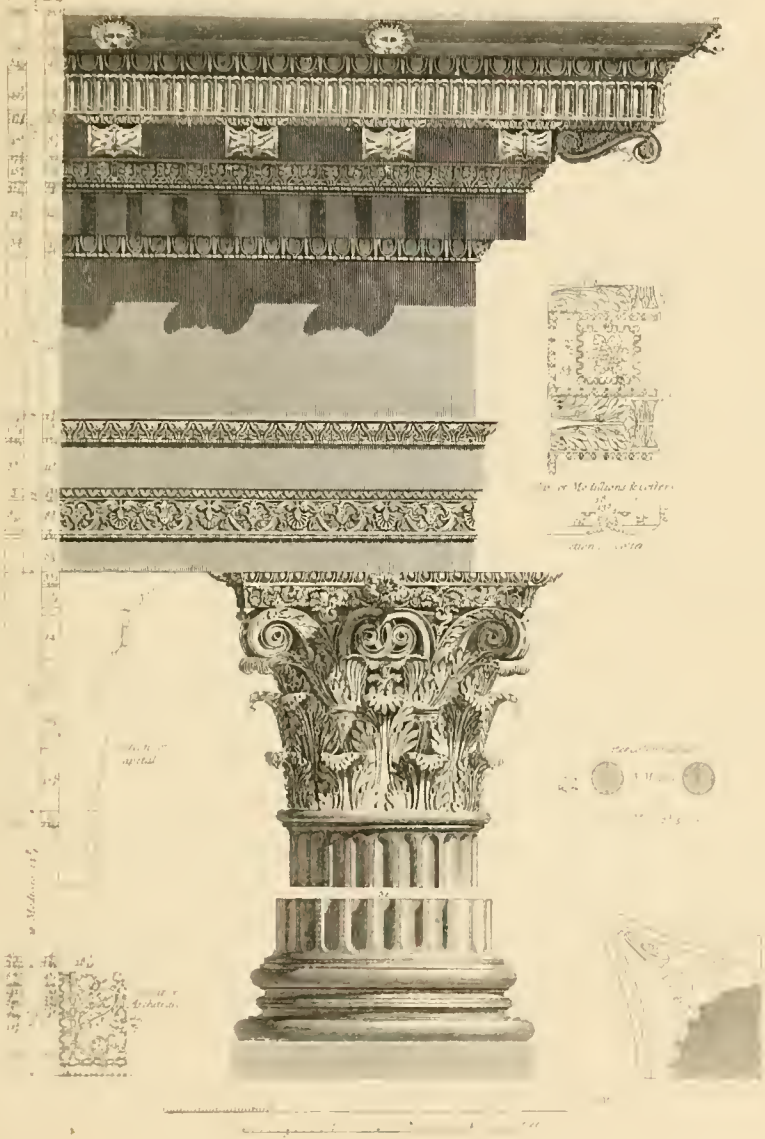
Pl. 1[illegible]

[illegible] CINTHIAN ORDER from the temple of JUPITER STATOR



Published by the Proprietors of the Building News 1860

SIR WILLIAM CHAMBERS TREATISE

To follow page 166.

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OF THE CORINTHIAN ORDER.

The three columns in the Campo Vaccino,* supposed remains of the Temple of Jupiter Stator, are generally allowed to be the most perfect models of the Corinthian order amongst the antiques at Rome. Palladio, in his fourth book, where he gives the whole profile at large, acknowledges that he never had seen any work better executed, or more delicately finished; that its parts are beautifully formed, well proportioned, and skilfully combined; all which last qualities are certainly signified by his *Benissimo intesi.*

With these favourable sentiments, it is extraordinary that, in his design of the Corinthian order, he should so very considerably deviate from this excellent original, as scarcely to leave the smallest shadow of resemblance.

Vignola, in his Corinthian profile, has chiefly imitated the above-mentioned fragment, and the interior order of the Pantheon, another very perfect model. His composition is uncommonly beautiful, and, without dispute, superior to that of any other master, he having artfully collected all the perfections of his originals, and formed a whole far preferable to either of them.

The design which I have given differs but little from that of Vignola.† The column is twenty modules high, and the entablature five; which proportions are a medium between those of the Pantheon and of the three columns. The base of the column may be either Attic or Corinthian; both are beautiful. Palladio and Scamozzi have employed the Attic base enriched with astragals; but so frequent a repetition of the same semi-circular forms in junction has a very indifferent effect, as may be observed at the church of St. Martin-in-the-Fields, at the Bank, and in various other buildings of this city, in which the profiles and forms of Palladio, good, bad, or indifferent, have indiscriminately been employed.

If the entablature be enriched, the shaft of the column should be fluted, provided it be not composed of variegated marble; for a diversity of colours

* As this order has received the admiration of ages, the Editor has thought proper to give an additional plate of it. It will be useful to compare its profile with that of our author, whose exemplification of the Corinthian is certainly inferior to those of his other orders.—[Ed.]

† However small the difference which our author has made, I think he has ruined Vignola's profile. The additional height of capital is decidedly for the worse.—[Ed.]

renders even smooth surfaces confused, and ornaments of sculpture only serve to make the confusion greater. The flutings may be filled to one-third of their height with cablings, as on the inside order of the Pantheon, which strengthen the lower part of the column, and make it less liable to damage. But when the columns are not within reach, nor subject to be hurt by passengers, the cables are better omitted, as the general hue of the shaft will then be the same throughout, and seem of a piece, which, when a part of the flute is filled and the other part left empty, is not the case, for the shaft then appears divided, and is less calculated to produce a great effect.

In some very rich buildings the cablings are composed of reeds, husks, spiral-twisted ribands, flowers, and various other ornaments. At the Tuileries, in Paris, there are some Ionic columns exquisitely wrought in this manner, one of them by Jean Gougeon's * own hand, and the rest under his immediate inspection.

It is, however, far better to reserve such niceties for interior decorations. In exterior compositions, whatever doth not contribute to the forcible effect of the whole structure is, in a great measure, useless, sometimes even detrimental, and an expense which might more judiciously be employed where it would be more attentively considered. In general, it may be laid down as a maxim, that excessive ornaments, though they may, and often do, increase the magnificence of a building, almost always destroy, more or less, the grandeur of its effect. Parts in themselves large, formed and disposed to receive broad masses, or strong oppositions of light and shade, must necessarily excite great ideas; but when these parts are broken into a number of small divisions, and their surfaces so varied as to catch a thousand spotty impressions of light, demi-tints, and darkness, the whole will, of course, form a confused appearance of trifling objects, which divide the attention and are utterly incapable of exciting any powerful emotions whatever.

The capital is enriched with olive leaves, as are almost all the antiques at Rome, of this order; the acanthus being seldom employed but in the Composite.† De Cordemoy, however, prefers the acanthus, and observes that the flexible sprigs, which accompany the leaves of that plant, may more naturally

* Jean Gougeon, a French sculptor and architect in the reign of Francis I., was an artist of very superior talents, and occasionally employed himself in modelling. Being a Protestant, he was one of the unfortunate sufferers in the horrid massacre on St. Bartholomew's day, 1572.—[Ed.]

† The Acanthus, Brancorsina, Bear's paw, Ἄκανθος, a creeping flexible plant, whose leaves are wider than those of the common lettuce, and of considerable length. Its root bears some resemblance to a bear's fore paw; hence, in Italian, it has received the name of Brancorsina. Its *habitat* is in damp situations, but it may be raised in any garden. There are two species—one, which is prickly and jagged, resembling a

be supposed to form the contour of the volutes than the stiff branches of a laurel or an olive tree. "Strange it is," says he, "that we soon cease to esteem what is natural; nature and reason must always be violated, and thus a confused jumble of little pointed leaves of an olive or a laurel is preferred to the simple and graceful outline of the acanthus."

De Cordemoy's observation is, strictly speaking, just; yet to variety something must be sacrificed, some liberties taken, and both the ancient as well as modern sculptors have, by uniting several olive, laurel, or parsley leaves together, to form distinct bunches, separated by filaments between which they seem to grow, contrived to compose leaves, different in appearance from the acanthus, indeed, yet neither more confused nor less graceful than that.

With respect to the manner of tracing and working this capital, the designs, with what has been said on the same subject in the Composite order, will serve as a sufficient explanation.

The divisions of the entablature bear the same proportion to each other as in the Tuscan, Ionic, and Composite orders. The frieze is enriched with a bas relief, composed from various fragments in the Villa Medici at Rome.* The parts and ornaments of the cornice are all regularly disposed, and perpendicularly over each other; the coffers in the soffit of the corona are square, and the borders round them equal on all sides, as they are in the Arch of Titus, and as Palladio has made them: a precaution neglected by Vignola, notwithstanding his usual regularity.

The ancients frequently employed the Ionic entablature in the Corinthian order, as appears by many of their buildings, and sometimes, according to

thistle—this is the shorter species, and from its thorny appearance, is properly the Acanthus, from ἄκανθα, a thorn. The other sort is cultivated, and has a smooth leaf, and is the plant of which Virgil speaks—

"——— aut flexi tacuissem vimen acanthi."

Georg. Lib. iv. 123.

It was used for medicinal purposes,—see Pliny, Lib. ii. c. 22,—and is the species which was adapted by the early architects to the decoration of the Corinthian capital, and in other ornamental foliage, as we find in Virg. Ec. iii. 44. Edit. Heyn.

"Et nobis idem Alcimedon duo pocula fecit,
Et molli circum est ansas amplexus Acantho."

Propertius, l. iii. eleg. 7. v. 14—and Virgil again, Æn. i. 649, &c.

"Et circumtextum croceo velamen Acantho."

There was a tree also which bore the name of Acanthus—found chiefly in Egypt.—[Ed.]

* The basso relievo which the author has selected to decorate his frieze is very ill chosen for the purpose. It is so overloaded and insubordinate to the whole, that a glance is sufficient to condemn it. The great talents of Messrs. Lowry and Moses have, however, in the plate to this, made it much more supportable than it is in the original editions.—[Ed.]

Vitruvius, even the Doric; though of the latter practice there is not now, that I know of, any example extant. The same author observes, that the Greeks in their works never employed the dentils under the modillions, because the rafters, which are represented by the dentils, could never in reality be placed under the beams or joists, which are represented by the modillions. However this may be, we are certain that the Romans were not so very scrupulous, for in their most esteemed works, such as the Temple of Jupiter Stator, the Forum of Nerva, the Temple of Jupiter Tonans, and several others, we find the dentils placed under the modillions. These examples will sufficiently authorize the same practice. The origin or reason of things of this nature is remote, and known to but few; while the general effect of a composition is obvious to all. If deviating, therefore, from what is little known and less felt, will eminently contribute towards the perfection of that which all see and all approve, it cannot justly be censured.

This liberty, however, of deviating from the origin or reason of things, was by the ancients, and must by us, be exercised with great caution, as it opens a wide door to whim and extravagance, and leaves a latitude to the composer which often betrays and hurries him into ridiculous absurdities. Bernini sometimes quitted the beaten road with judgment; but Borromini,* first his scholar, and at length his rival, in attempting to conquer by novelty, and quitting the ancient rules, was submerged in an ocean of extravagance. Thus, says the author of his life, from being among the first men of his time for abilities and extent of genius, Borromini sunk to a level with the last by a ridiculous application of his talents.

I do not know who first introduced among us the favourite ornament of festoons standing up like arches, instead of hanging down as nature directs; nor do I recollect the name of him who, in the church of St. Romolo at Florence, has, for the sake of variety, placed the capitals at the feet of his columns; but select these facts as absurd instances, among others, of the length to which innovators may carry any system unrestrained by rules, and subject to no other laws than the crude momentary effusions of a vitiated fancy. Things evidently absurd, no time nor authority can sanctify.

When the modillion cornice is employed on large concave surfaces, the sides of the modillions and coffers of the soffit should tend towards the centre

* Francesco Borromini was born in 1599; he studied architecture under Carlo Maderno. So jealous was he of the fame and reputation of Bernini, that he is said to have stabbed himself in Rome, 1667. It is, however, rather strange that such a cause should have led him to so desperate an act, because, from the number of his edifices, he must have enjoyed considerable employment in his profession.—[Ed.]

of the curve, as in the Pantheon; but when the concave is small, it will be better to direct them towards the opposite point in the circumference, that the contraction may be less perceptible, and the parts dependent thereon suffer less deviation from their natural form. The same rules must be observed with regard to dentils, to the abacus and bases of columns or pilasters, and likewise to the flanks of the pilaster itself. But on a convex surface the sides of all these should be parallel to each other, for it would be unnatural and very disagreeable to see them narrowest where they spring out of the cornice, diverging as they advance forwards, forming sharp angles, and a sort of mutilated triangular plan, with enlarged solids and diminished intervals: all calculated to destroy the usual proportions and beauty of the composition.

The Corinthian entablature may be reduced to two-ninths, or one-fifth of the height of the column, by the same rules as are given in the Ionic and Composite orders; but where it becomes necessary, or is judged expedient, to make the entablature so small as one-fifth, it will, I apprehend, be best to substitute the Ionic entablature, as Palladio has done in the peristyle of his Olympic Theatre at Vicenza, and in many others of his buildings; or else to retrench the dentils of the cornice, as in one of Serlio's, and in Scamozzi's profiles; the part of the cornice under the modillion band, remaining then composed of only the ovolo and ogee, separated by a fillet, as in the temples of Trevi and Scisi in Umbria, mentioned in Palladio's fourth book.

The Corinthian order is proper for all buildings where elegance, gaiety, and magnificence are required. The ancients employed it in temples dedicated to Venus, to Flora, Proserpine, and the nymphs of fountains; because the flowers, foliage, and volutes, with which it is adorned, seemed well adapted to the delicacy and elegance of such deities.* Being the most splendid of all the orders, it is extremely proper for the decoration of palaces, public squares, or galleries and arcades surrounding them; for churches dedicated to the Virgin Mary, or to other virgin saints; and on account of its rich, gay, and graceful appearance, it may with propriety be used in theatres, in ball or banqueting rooms, and in all places consecrated to festive mirth or convivial recreation.

* "Veneri, Floræ, Proserpinæ, fontium Nymphis, Corinthio genere constitutæ, aptas videbuntur habere proprietates, quod his Diis propter teneritatem, graciliora et florida, foliisque et volutis ornata opera facta, augere videbuntur justum decorem." Vitruvius, Lib. i. c. 2.

NOTE ON THE ORDERS.

It is not altogether without reason that the hitherto-received as orthodox doctrine of the Five Orders has been of late brought into disrepute. Not only does it authorise, but even insists upon, not only the most servile but the most mechanical copyism. Dispensing with, even prohibiting, any exercise of the artist mind, such system reduces what ought to be design nearly to the level of manufacture. What are termed Orders ought rather to be regarded as Classes of columns and their entablatures, which, though conforming respectively to certain normal proportions, and preserving certain characteristic details, admit of great, almost illimitable diversity.

Far better would it have been for Modern Classic had the writings of Vitruvius never been brought to light, or else estimated at their real worth, instead of being regarded with superstitious reverence.

The division of the Orders into Five gives either too many or else too few. Too many, because it makes distinct orders of the Corinthian, and that variety of it invented by the Romans, and called the Composite. The same may be said of the modern Tuscan and Doric orders, since they plainly enough belong to one and the same general class: or else, if each strongly-pronounced variety of the same original type is to be accounted as a separate order, the orders might be greatly and also very inconveniently multiplied. There are, for instance, authentic examples of the Ionic which have nothing in common—are altogether dissimilar in expression, except that the capital is voluted. The same may be said of the so-called Corinthian or foliaged capital order, to enumerate all the varieties of which would be no easy task. Let it suffice, then, for comparison's sake, to place only two of them in juxtaposition: the Tivoli example of Corinthian and that of the Pantheon, or else that exhibited by Chambers himself as the technically-correct representative of the order. Hardly do we need stronger evidence to convince us that it is possible for striking varieties to be produced which, however strongly-marked may be their differences, partake alike of the same generic character.

There are very many examples of antique capitals and other sculpturesque architectural details treasured up in museums (some of them have been edited by Piranesi) which, though only fragments, are well deserving of being studied, not indeed as lessons for beginners, nor as express models for imitation, yet exceedingly useful as studies to those who are capable of profiting by them; at any rate they are suggestive, and it is very possible to derive an excellent idea from what, so far from being faultless, requires to be reshaped. To pretend to *improve* upon the worthiest examples of the Antique, may, indeed, be justly deemed presumptuous; yet it surely is, or ought to be, allowable, even laudable, to endeavour to compete with them; and he who has formed his taste by thoughtful artistic study may safely be trusted with a privilege which he would hardly abuse—that of being permitted to break away from technical routine without at the same time deviating from what constitutes the æsthetic spirit of his models.

Contrary to what has been urged by some as dissuasive from the artistic liberty here recommended, such liberty would rather stimulate to more diligent æsthetic study. So far from being a hasty, crude and ill-considered effusion of the moment, an idea for treating an Order with some touches of originality and inventive power might be the well-matured result of diligent study. The great mistake on the part of the Italian or Modern Classic school, and its followers, has been the establishing for the Orders such minute and overstrict rules that, as far as they are concerned, what ought to be design, and give evidence of individual artistic mind, is reduced to what is little better than a mechanical process. Not altogether undeservedly, therefore, has Classic incurred of late, from some, the reproach of servile copyism and wearisome sameness of detail.—[W. H. L.]

OF PILASTERS.

Pilasters are, I believe, a Roman invention, and certainly an improvement. The Greeks employed antæ* in their temples, to receive the architraves where they entered upon the walls of the cell. These, though they were in one direction of equal diameter with the columns of the front, were in flank extravagantly thin in proportion to their height, and neither their bases nor capitals bore any resemblance to those of the columns they accompanied. The Roman artists, disgusted, probably, with the meagre aspect of these antæ, and the want of accord in their bases and capitals, substituted pilasters in their places, which, being proportioned and decorated in the same manner with the columns, are certainly more seemly, and preserve the unity of the composition much better.

Pilasters differ from columns in their plan only, which is square, as that of the column is round. Their bases, capitals, and entablatures have the same parts, with all the same heights and projections, as those of columns, and they are distinguished in the same manner by the names of Tuscan, Doric, Ionic, Composite, and Corinthian.

Of the two, the column is, doubtless, most perfect. Nevertheless, there are occasions in which pilasters may be employed with great propriety; and some where they are, on various accounts, even preferable to columns.

I am not ignorant that several authors are of a different opinion: a certain French Jesuit† in particular, who, some thirty years ago, first published an essay on architecture, which from its plausibility, force, and elegance of diction, went through several editions, and operated very powerfully on the superficial part of European connoisseurs. He inveighs vehemently against pilasters, as against almost every other architectonic form but such as were imitated by the first builders in stone, from the primitive wooden huts; as if,

* One of the most objectionable practices of the day, is the servile imitation of the Greek antæ. It is quite inconsistent with any regard to the primitive types from which the Grecian architecture is supposed to have originated. Added to this, their application in such very thin laminæ against the walls as could be pointed to in some pseudo-Grecian buildings about the metropolis, produces a remarkably silly and sheepish effect.—[Ed.]

† The Abbé Laugier.—[Ed.]

in the whole catalogue of arts, architecture should be the only one confined to its pristine simplicity, and secluded from any deviation or improvement whatever.

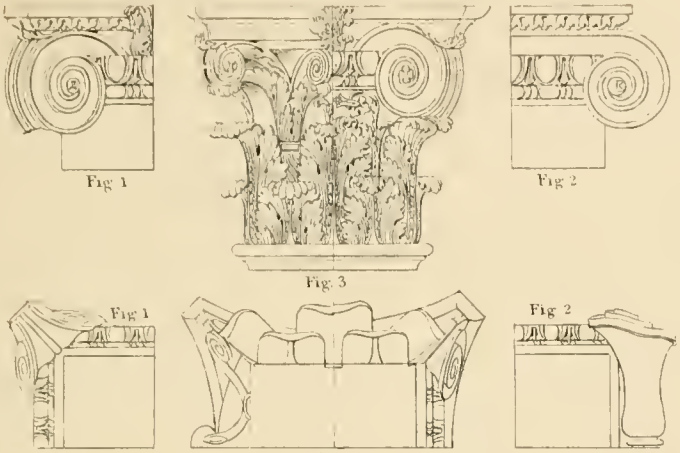
To pilasters the essayist objects, because they are, in his opinion, nothing better than bad representations of columns. Their angles, says he, indicate the formal stiffness of art, and are a striking deviation from the simplicity of nature; their projections, sharp and inconvenient, offend and confine the eye, and their surfaces without roundness, give to the whole order a flat air: they are not susceptible of diminution, one of the most pleasing properties of columns; they are never necessary, and to sum up the whole, he hates them: his aversion was first innate, but has since been confirmed by the study of architecture.

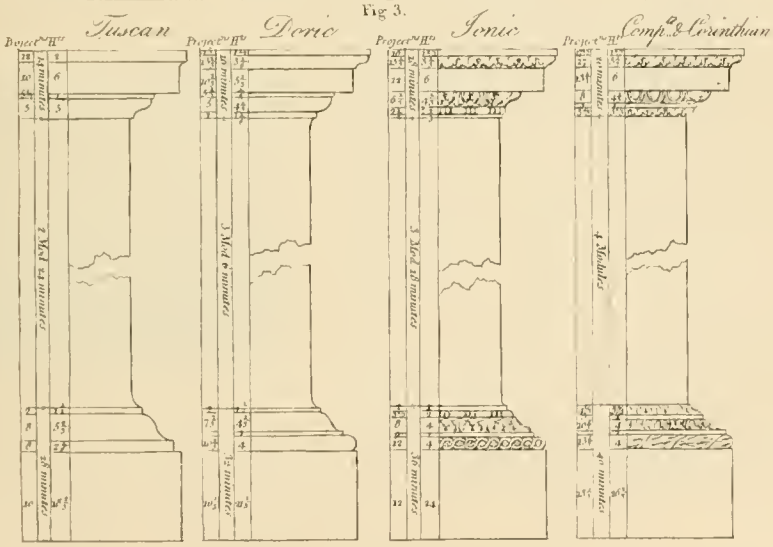
Concerning the reverend father's inborn aversion, much need not be said, and several others of his objections, as they consist more of words than meaning, seem not to require any refutation; but to assert that pilasters are not susceptible of diminution, shows very little acquaintance either with books of architecture or with buildings. There are many instances, in the remains of antiquity, of their being diminished, particularly when accompanying columns; they are so in the temple of Mars the avenger, in the frontispiece of Nero, in the portico of Septimius Severus, and in the arch of Constantine, all at Rome. Scamozzi* always gave to his pilasters the same diminution as to his columns; Palladio has diminished them in the church of the Redentore at Venice, and in many others of his buildings: as Inigo Jones† has likewise done in many of his, particularly at the Banqueting-House at Whitehall.

* He says, Parte Seconda Lib. sesto, Cap. ii., "I Pilastri ancor essi tengono una certa simiglianza con le Colonne, ma pero sono quadrilateri, ad imitazione de gli alberi squadrati."—[Ed.]

† This justly celebrated English architect was the son of Ignatius Jones, a clothworker, and was born in the vicinity of St. Paul's, about 1572. He is said to have been apprenticed to a joiner, but that he remained long in such fetters is not probable, from the circumstance of his early skill in landscape painting, of which a specimen is, I believe, still to be seen in Chiswick House. It is not settled who had the honor of being his patron; some place it to the account of the Earl of Arundel, others to that of William, Earl of Pembroke. At the expense, however, of one of these, he visited Italy, in which country he spent much of his time at Venice. From Venice he passed into Denmark, on the invitation of Christian IV. In 1606 he returned to his native country, in the suite of the King of Denmark, whose sister James I. had married. Mr. Seward observes that the first of his works in England was the interior of the church of St. Catherine Cree in Leadenhall Street. Soon after his arrival, he was appointed architect to the Queen, and was also in the service of Prince Henry; to these he gave so much satisfaction, that the King granted him the reversion of Surveyor-General. On the death of Prince Henry in 1612, Jones visited Italy a second time, where he remained until the office just mentioned fell to him. His liberality and disinterestedness on this occasion deserve to be recorded. Finding the office greatly in debt, he not only served without pay till the embarrassments were removed, but prevailed upon his

Plans and Elevations of Pilaster Capitals.





Pedestals for the Orders.

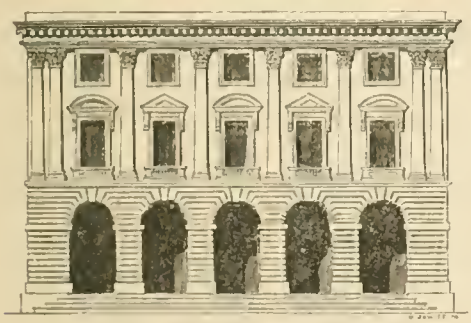
W. Chambers H. Shaw sc

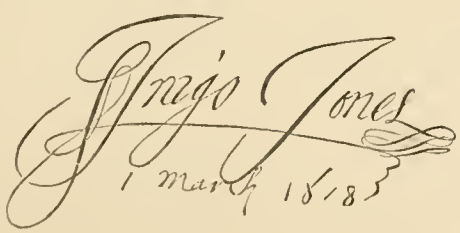
Published by the Proprietors of the Building News, 1860

And if we go back to the origin of things, and consider pilasters, either as representing the ends of partition walls, or trunks of trees reduced to the diameter of the round trunks which they accompany, but left square for greater strength, the reason for diminishing them will, in either case, be strong and evident.

It is likewise an error to assert that pilasters are never necessary, but that columns will at all times answer the same end, for at the angles of all buildings they are evidently necessary both for solidity and beauty,—because the angular

fellow officers to do the like,—by which expedient the debt was soon cleared. He wrote, by desire of the King, an account of Stonehenge, in 1620, in which year he was appointed one of the Commissioners for repairing St. Paul's Cathedral in London. On the death of James he was continued in his situation by Charles I., for whom he executed the Banqueting-House, barely the fiftieth part of a palace at Whitehall, the designs for which had been made in the previous reign. In June, 1633, the order was issued for the reparation of St. Paul's; on which Jones was, immediately afterwards, employed. During the reign of Charles I. Jones gave many proofs of his genius and fancy, in the machinery and designs for the scenic representations of masques and interludes, then so much in fashion;—Ben Jonson was usually the poet on these occasions. In 1614 these great men had a misunderstanding, which led the last-named to lampoon Inigo under the character of Lantern Leatherhead, a hobby-horse seller, in his "Bartholomew Fair." The rupture, after much coarse and virulent satire on the part of the poet, ended only with his death. About 1640 our architect fell into trouble on account of the times, for, during the usurpation, he was obliged to pay £545; being the composition for his estate, as a malignant. Jones was restored to his post by Charles II., but it was then little more than an empty title. Grief, it is supposed, occasioned by the calamity of his former master, put a period to his existence, July 21, 1652. He was interred in the chancel of St. Bennet's, Paul's Wharf, London. His works are too well known to need an enumeration here: suffice it to say, that he was the father of pure architecture in this country. Several of his buildings may be seen in Campbell's Vitruvius Britannicus. His principal designs were published by Kent, fol. 1727, some of his lesser designs, fol. 1744; and others were also published by Mr. Ware. The Water Front of Old Somerset House, here inserted, has lately been indifferently copied in this metropolis. Inigo Jones left a copy of Palladio, the Venice Edit. of 1601, with notes on the margin, in his own handwriting. He seems to have carried this copy about with him on his travels, from the notes being dated. The book, which has been badly preserved, is in the Library at Worcester College; from it was traced a copy of the autograph of Jones, a fac-simile of which is subjoined. See Note, page 24.





[Ed.]

support having a greater weight to bear than any of the rest, ought to be so much the stronger; so that its diameter must either be increased, or its plan altered from a circle to a square, the latter of which is certainly the most reasonable expedient on several accounts, but chiefly as it obviates a very striking defect, occasioned by employing columns at the angles of a building, which is that the angle of the entablature is left hanging in the air without any support; a sight very disagreeable in some oblique views, and in itself very unsolid.

It is indeed customary in porches and other detached compositions to employ columns at the angles, and it is judicious so to do, for of two defects the least is to be preferred. And although Father Laugier, the writer whose objections I have just now cited, could see no reason for rejecting detached pilasters when engaged ones were suffered, yet there is a very substantial reason, which is, that a detached pilaster, in some oblique views, appears thicker than it does in front, nearly in the ratio of seven to five, and consequently if, when seen in front, it appears well proportioned in itself, and with regard to the columns it accompanies, it never can appear so when viewed upon the angle; as may be observed in the colonnades of the great court at Burlington House, in Piccadilly, and at the porch of St. George's Church, near Hanover Square.

Engaged pilasters are employed in churches, galleries, halls, and other interior decorations, to save room, for as they seldom project beyond the solid of the walls more than one-quarter of their diameter, they do not occupy near so much space even as engaged columns. They are likewise employed in exterior decorations; sometimes alone, instead of columns, on account of their being less expensive, as at the Duke of Queensbury's House in Burlington Gardens, General Wade's House in the same place, and in many other buildings here in London; at other times, they accompany columns, being placed behind them to support the springing of the architraves, as in the Pantheon at Rome, and in the porch of St. Martin in the Fields, Westminster; or on the same line with them, to fortify the angles, as in the portico of Septimius Severus at Rome, and in the church of St. Laurence of the Jewry in London. Blondel says*, they may likewise be employed instead of columns, detached, to form peristyles and porticoes, but there is no instance of this, that I remember, in all the remains of antiquity; neither has any modern architect, I believe, been so destitute of taste as to put it in practice.

* "On peut les mettre au lieu des rondes dans les portiques, dans les peristyles," &c. Blondel, Cours d'Architecture, Liv. viii. chap. ier.—[Ed.]

When pilasters are used alone, as principal in the composition, they should project one-quarter of their diameter beyond the walls, as Scamozzi * teaches, and as they do at the Banqueting-House, Whitehall, which gives them a sufficient boldness, and, in the Corinthian and Composite orders, is likewise most regular,—because the stems of the volutes, and the small leaves in flank of the capital, are then cut exactly through their middles. But if the cornice of the windows should be continued in the inter-pilaster, as is sometimes usual, or if there should be a cornice to mark the separation between the principal and second story, as at the Mansion-House of London, or large imposts of arches, the projection must, in such cases, be increased, provided it is not otherwise sufficient to stop the most prominent parts of these decorations; it being very disagreeable to see several of the uppermost mouldings of an impost or cornice cut away perpendicularly, in order to make room for the pilaster, while the cornice or impost on each side projects considerably beyond it, as has been done at St. Peter's of the Vatican, as well as in several other buildings of Rome, and other towns of Italy. Mutilations are, on all occasions, studiously to be avoided, as being destructive of perfection, and strong indications either of inattention or ignorance in the composer.

When pilasters are placed behind columns, and very near them, they need not project above one-eighth of their diameter, or even less, excepting there should be imposts or continued cornices in the inter-pilaster; in which case what has been said above must be attended to. But if they be far behind the columns, as in porticoes, porches, and peristyles, they should project one-sixth of their diameter at least; and when they are on a line with the columns, their projection is to be regulated by that of the columns, and consequently it never can be less than a semi-diameter, even when the columns are engaged as much as possible. This extraordinary projection, however, will occasion no very great deformity, as the largest apparent breadth of the pilaster will exceed the least only in the ratio of eleven to ten, or thereabouts. But if columns be detached, the angular pilaster should always be coupled with a column, to hide its inner flank, as in the portico of Burlington House; because the pilasters will otherwise appear disproportionate when seen from the point of view proper for the whole building; especially if the fabric be small, and the point of view near.

* "I pilastri per regola generale quando saranno da se soli appoggiati alle mura deono uscire la quarta parte della loro larghezza, perche così fanno bello aspetto, e capiscono anco gli aggetti de gli ornamenti delle Porte, e Finestre, e Nicche, ò Tabernacoli, che fussero trà essi; le quali non deono mai sopra avanzare al diritto di fuori d' essi Pilastri; e di questo vitio si hanno molto schifato gli Antichi." Scamozzi, Parte Seconda, Lib. vi. c. 11.—[Ed.]

It is sometimes customary to execute pilasters without any diminution; in the antiques there are several instances thereof, as well as of the contrary practice, and Palladio, Vignola, Inigo Jones, and many of the greatest architects, have frequently done so. Nevertheless, it is certain that diminished pilasters are, on many accounts, much preferable. There is more variety in their form; their capitals are better proportioned, both in the whole and in their parts, particularly in the Composite and Corinthian orders; and the irregularities occasioned by the passage of the architraves, from diminished columns to undiminished pilasters, are thereby avoided; as are likewise the difficulties of regularly distributing the modillions and other parts of the entablature, either when the pilasters are alone, or accompanied with columns.

Another disagreeable effect of undiminished pilasters is likewise obviated by rejecting them. Indeed I am at a loss to account for it, and, as it is diametrically opposite to a received law in optics, I imagined it might be the result of some defect in my own sight, till by enquiry, I found others were affected in the same manner. It is this; the top of the shaft always appears broader than the bottom; as any one may observe by casting a glance on the pilasters of St. Paul's, of St. George's, Hanover Square, or any others that are not diminished. The author of *l'Esprit des Beaux Arts* accounts for a similar effect in a manner more subtile, I believe, than true. He makes it to be the result of a nice comparison between the real and the apparent distance, which, to me, seems to have little, or rather no share at all in it. An ingenious writer* of our own country observes, that the senses strongly affected in some one manner, cannot quickly change their tenor, or adapt themselves to other things, but continue in their old channel until the strength of the first mover decays. This being admitted, it is not improbable that the capital, which is immediately above the shaft, being considerably broader and certainly the first attractive object, may have an influence on the apparent upper breadth of the shaft, and occasion the effect above mentioned. Perhaps, too, the light may in some measure contribute thereto, it being stronger at the foot of the shaft than towards its top.

The shafts of pilasters are sometimes adorned with flutings in the same manner as those of columns, the plan of which may be a trifle above a semicircle, and they must be to the number of seven on each face, which makes them nearly of the same size with those of the columns. The interval between them must be either one-third or one-fourth of the flute in breadth

* See Burke's "Enquiry into the Origin of our Ideas of the Sublime and Beautiful."

and when the pilaster is placed on the pavement, or liable to be broken by the touch of passengers, the angle may be rounded off, in the form of an astragal; between which and the adjoining flute, there must be a fillet or interval of the same size with the rest, as in the porch of the Pantheon at Rome.

The flutes may, like those of columns, be filled with cablings to one-third of their height, either plain, and shaped like an astragal, or enriched, according as the rest of the composition is simple or much adorned. Scamozzi* is of opinion that there should be no flutings on the sides of engaged pilasters, but only in front, and, whenever cornices or imposts are continued home to the pilaster, this should particularly be attended to, that the different mouldings of these members, by entering into the cavities of the flutes, may not be cut off in irregular and disagreeable forms. But if the flanks of the pilaster are entirely free, it may be as well to enrich them in the same manner as the front, provided the flutes can be so distributed as to have a fillet or interval adjoining to the wall; which is always necessary to mark the true shape of the pilaster distinctly.

The capitals of Tuscan or Doric pilasters are profiled in the same manner as those of the respective columns; but in the capitals of the other orders there are some trifling differences to be observed. In the antique Ionic capital, the extraordinary projection of the ovolo makes it necessary, either to bend it inwards considerably towards the extremities, that it may pass behind the volutes, or instead of keeping the volutes flat in front, as they commonly are in the antique, to twist them outwards till they give room for the passage of the ovolo. Le Clerc† thinks the latter of these expedients the best, and that the artifice may not be too striking, the projection of the ovolo may be considerably diminished, as in the annexed design,‡ which, as the moulding can be seen in front only, will occasion no disagreeable effect.

The same difficulty subsists with regard to the passage of the ovolo behind the angular Ionic volutes. Le Clerc,§ therefore, advises to open or spread the volutes sufficiently to leave room for the ovolo to pass behind them, as in the design‖ annexed; which may easily be done, if the projection of the ovolo is diminished. Inigo Jones has, in the Banqueting-House, made the

* "Nè mai si deono cannellare i Pilastri ne' loro fianchi, che escono fuori delle mura." Scamozzi, Parte Seconda, Lib. vi. c. 11.—[Ed.]

† Traité d'Architecture, Section troisième.—[Ed.]

‡ Pl. of Pilasters, fig. 2.

§ Traité d'Architecture, Section troisième.—[Ed.]

‖ Pl. of Pilasters, fig. 1.

two sides of the volutes parallel to each other, according to Scamozzi's manner, and at the same time has continued the ovolo in a straight line under them; so that the volutes have an enormous projection, which, added to the other faults of these capitals, renders the whole composition unusually defective and exceedingly ugly.

What has been said with regard to the passage of the ovolo behind the volutes in the Ionic order, is likewise to be remembered in the Composite; and in the Corinthian the lip or edge of the vase or basket may be bent a little inwards towards its extremities, by which means it will easily pass behind the volutes. The leaves in the Corinthian and Composite capitals must not project beyond the top of the shaft, as they do at St. Carlo in the Corso at Rome, and at the Banqueting-House, Whitehall; but the diameter of the capital must be exactly the same as that of the top of the shaft. And to make out the thickness of the small bottom leaves, their edges may be bent a trifle outwards, and the large angular leaves may be directed inwards, in their approach towards them, as in the annexed design,* and as they are executed in the church of the Roman College at Rome. Where the small leaves have a considerable thickness, though the diameter of the capital is exactly the same as that of the shaft, in each front of the Composite or Corinthian pilaster-capital, there must be two small leaves, with one entire and two half large ones. They must be either of olive, acanthus, parsley, or laurel, massed, divided, and wrought in the same manner as those of the columns are, the only difference being, that they will be somewhat broader.

The employing half, or other parts of pilasters that meet, and, as it were, penetrate each other in inward or outward angles, should, as much as possible, be avoided, because it generally occasions several irregularities in the entablatures, and sometimes in the capitals also. Particular care must be taken never to introduce more than one of these breaks in the same place, for more can never be necessary. In many of the churches at Rome, we see half a dozen of them together, which produces a long series of undulated capitals and bases and a number of mutilated parts in the entablature, than which nothing can be more confused or disagreeable.

Instead of pilasters, it is sometimes customary to employ columns that penetrate each other in the inward angle. There are several instances of this at Paris, particularly about the Louvre, but it is a practice universally condemned, and the bad effect thereof may be seen on the front of the Royal Exchange towards Cornhill, and within the Banqueting House at Whitehall.

* Pl. of Pilasters, fig. 3.

NOTE ON PILASTERS AND ANTÆ.

Laugier's antipathy to pilasters is so absurd that he hardly deserves serious refutation. It surely does not follow that, because pilasters are less beautiful than columns—certainly much less emphatic and effective, that they have no sort of beauty or merit of their own to recommend them. It is rather an advantage than the contrary to be able to produce different degrees of expression. Pilasters are, at any rate, preferable to *half* columns, which, when viewed obliquely, have a maimed and attenuated look. Pilasters combine naturally with the wall to which they are attached, and of which they are, in fact, only so many more strongly pronounced structural parts, and thereby give the expression of increased strength together with that of compactness.

There being no authority *for* pilasters, in what we now understand to have been pure Greek architecture, is no argument against them. Antæ, properly so called, can occur only at the extremity of a wall at right angles to the façade and its columns; and the Greeks treated them both logically and æsthetically by making them decidedly contrast with, instead of endeavouring to assimilate them as nearly as possible to, columns by diminishing upwards, and giving them like-moulded bases and like-featured capitals. Verticality was opposed to the obliquity of the tapering column, the plain, flat face of the antæ to the round and fluted shafts of the accompanying columns. Antæ caps, too, bore little resemblance to the capitals of the accompanying columns. Notwithstanding, therefore, that it has been done by some modern architects, it is a solecism to apply antæ as pilasters, or rather to fashion what are in fact a range of pilasters on the face of a wall similarly to antæ; the latter, especially Doric antæ, being very ill-suited to show as decoration. A veritable anta forming the termination of a wall defines itself distinctly to the eye, whereas thin slices of it stuck upon a wall produce scarcely any effect at all, except it be that of insipid tameness.

If the wall surface between pilasters be rusticated—that is, show the joints of the courses of masonry—the pilaster shafts will be distinctly pronounced; or else, similar distinction and distinctness may be obtained by fluting or otherwise decorating the faces of the pilasters.

Quite contrary as it would be to the practice of the Greeks, and so far at variance with bookish rules, it would not be counter to the fundamental laws of æsthetic philosophy to bestow on antæ or pilasters, placed at the angles of a composition, an increased degree of expression, whether it be produced by enrichment or otherwise. When columns are placed *in antis*, the antæ may with assured good effect be made considerably wider *in front* than the diameter of the columns with which they are associated.

Besides antæ and pilasters, there are what—although no particular name has been invented for them—may be described as *quadrilateral pillars*, differing from columns by being square instead of round, but, like disengaged or perfect columns, standing quite isolated. Such *Quadrantes*—to give them, for the nonce, a name—come in admirably at the external angles of a prostyle, and at re-entering angles, where one line of columns meets another placed perpendicularly, *i.e.*, at a right angle to it. It is a very futile objection to say that, where seen diagonally or obliquely, a square shaft appears bulkier than a round one of the same diameter; it is surely enough that it is known to be no thicker than the other when looked at directly in front or drawn geometrically. Or, if objections of that kind are to be admitted as valid argument, the Greeks themselves might be convicted of gross error by their mixing up antæ with columns, and thereby opposing *flatness* to *convexity*. As regards square pillars, so far from being freakish licenses or contrary to any principle of sound architectonic construction, they are strikingly expressive of stability. Fortunately, St. George's Hall, at Liverpool, now affords an eloquent example of, and precedent for, the use of pillars of that description, which speaks far more in their favour than any argument on paper can do. The lateral ranges of square shafts with low intercolumnar screens, in continuation of the central colonnade, are a singularly happy idea. No doubt, it may plainly enough be traced to a similar disposition of columns in some Egyptian temples; yet that does not at all detract from its originality. The mural screens combine with and fit in far better between square shafts than round ones; therefore, so far there is decided improvement. It is surely no small merit to have seized upon and turned so well to account an idea which, obvious as it now seems, had so long been overlooked by modern architects, and which would, moreover, if properly followed up, lead on to picturesque combinations and effects hitherto unessayed.—[W. H. L.]

OF PERSIANS AND CARYATIDES.

Besides columns and pilasters, it is sometimes customary to employ representations of the human figure, to support entablatures in buildings. The male figures are called Persians, Telamones, or Atlantides, and the females Caryans or Caryatides. The origin of this custom, Vitruvius* tells us, is as follows.

The inhabitants of Carya, a city of the Peloponnesus, having joined the Persians in a war against the rest of the Greeks, and that war being terminated by the defeat of the Persians, the Greeks commenced hostilities against the Caryates, took their city, demolished it, and putting all the males to the sword, carried the females into captivity; and to treat them with still greater ignominy, they forbade the ladies to divest themselves of their robes, or any of their ornaments; that so they might not only be once led in triumph, but in a manner suffer the mortification of a triumph all their lives after, by appearing constantly in the same dress as on the triumphal day. And further, as an everlasting testimony of the punishment inflicted on the Caryates, and to inform posterity what had been the nature of their chastisement, the architects of that time, instead of columns, employed the representations of these women, to support the entablatures of their public buildings.

The Lacedæmonians did the same thing after the battle of Platea, erecting with the spoils taken from the enemy a gallery, which they called Persian; wherein statues, in the form of captive Persians, with their usual dresses, supported the arches, intending thereby to punish that nation in such a manner as its pride had merited, and to leave posterity a monument of the valour and victories of the Lacedæmonians.

The introduction of figures of men and animals to support burthens in buildings or otherwise, had certainly an earlier origin than that ascribed to it by Vitruvius. It seems to have been a very early and favorite idea among several people of the remotest antiquity. Homer mentions the practice in the

* Lib. i. c. 1.

Persians and Caryatides.

H. Moses sc

Published by the Proprietors of the Building News, 1860

Printed from Stone by Fisherins & Sons London

seventh book of the Odyssey,* and I think, in one or more other places of his poems. Hiram's molten sea† was supported by twelve bulls, and on the walls of the oracle he placed alternate cherubim and palm-trees, supporting wreaths of flowers, and probably the ceiling. In the sepulchre of King Osymandyas, which, as Diodorus Siculus relates, was ten furlongs in circuit; there was a stone hall, forming a space of four hundred feet every way, of which the roof instead of pillars was supported by animals, each of a single stone, and twenty-four feet high, being carved in the ancient Egyptian manner. The roof was also entirely of stone, composed of stones twelve feet square; the whole being coloured to represent an azure sky, bespangled with stars. Of the number or natures of these animals, nothing is said; but if the whole space was covered, more than one thousand would have been requisite to support the roof, and more than a thousand stones to form it. In several Indian buildings too, supposed to be of great antiquity, may be observed figures of men and animals supporting the roofs, after the manner described in the sepulchre of Osymandyas; particularly in that cut in the solid rock near Bombay, usually called the Elephanta.‡

Among the antiquities at Rome, there are various fragments of male figures, which, from their attitudes, and some ornaments about them, may be conjectured to have served as supports to the entablatures of buildings: but there are no remains of any female statues of that kind, excepting the three Graces supporting an urn, in the Villa Borghese. Pliny§ makes mention of some by the hand of Praxiteles, which in his time, were in the library of Asinius Pollio at Rome; and of other female figures in the Pantheon, where, although the structure was enriched with several works of Diogenes the Athenian, they

* *Χρύσειοι δ' ἆρα κοῦροι ἐυδμήτων ἐπὶ βωμῶν*
Ἕστασαν, αἰζομένας δαΐδας μετὰ χερσὶν ἔχοντες
Φαίνοντες νύκτας κατὰ δώματα δαιτυμόνεσσι.

Odyss. H. v. 100.—[Ed.]

† "And he made a molten sea, ten cubits from the one brim to the other; it was round all about, and his height was five cubits, and a line of thirty cubits did compass it round about. It stood upon twelve oxen, three looking towards the north, and three looking towards the west, and three looking towards the south, and three looking towards the east; and the sea was set above upon them, and all their hinder parts were inward."—1 Kings, vii. 23, 25.—[Ed.]

‡ For an account of the origin of the use of Caryatides, see the "Examination of the Elements of Beauty in Grecian Architecture, with a brief Investigation of its Origin, Progress, and Perfection," prefixed to this edition, page 43.—[Ed.]

§ "Romæ Praxitelis opera sunt, Flora, Triptolemus, Ceres in hortis Servilii: Boni Eventus, et Bonæ Fortunæ simulachra in Capitolio: item et Mænades, et quas Thyadas vocant, et *Caryatidas:* et Sileni, in Pollionis Asinii monumentis, et Apollo et Neptunus."—Plin. Lib. xxxvi. cap. 4. Our author has made, therefore, a mistake in the ownership of the Caryatides here mentioned by Pliny.—[Ed.]

were held in much esteem: they seem to have been cut in basso or alto relievo, to have been placed over the columns, and were probably, as Fontana conjectures, employed to adorn the Attic, and support its cornice.

Among the antiquities of Athens, published by M. Le Roy*, there are five Caryatides supporting an entablature, contiguous to the Temple of Erectheus. They bear a considerable resemblance to those celebrated ones of Jean Gougeon†, in the Swiss Guard-room of the Louvre at Paris; of one of which there is a representation, fig. 8, plate of Caryatides. Speaking of these figures, Monsieur Le Roy expresses himself in the following manner. "The history of the Caryatic order," says he, "is so curious, that almost all authors have quoted it; but though we are well informed of its origin, yet we have hitherto learnt nothing of the proportions observed therein by the ancients. Vitruvius is silent upon the subject; there is no monument of that order at Rome, and the only ancient example, perhaps, existing in Europe, which is that here given, has hitherto remained unnoticed. The four figures standing in front, resemble each other entirely, excepting that the two to the right have the right leg foremost, and the two to the left, the left leg; in order to symmetrise more perfectly. They are crowned with capitals, upon which is placed the entablature, remarkable by a suppression of the frieze, a peculiarity which the ancients, perhaps, usually practised to characterise this order.

"The general mass of the entablature is very high; it exceeds a third of the height of the figures, and it would be difficult to ascribe a reason for this excess, were it not considered that a full dressed woman, which these represent, forms a shape more in the proportion of a very short Doric column, than of an elegant Ionic one; which probably induced the architect to enlarge his entablature, to prevent its appearing too slight for the figures. Be this as it may, the profile of the entablature is very perfect. The dentils in the cornice show it to be Ionic, and there are on the upper fascia, an ornament consisting of little rounds, like nail-heads, which has not been introduced in any of the other orders.

"But that which is most excellent in this building, is doubtless the Caryatides themselves. There are now only five left of the six originally there; they are of a beautiful design, with drapery in the style of that of the Flora in the Farnesian Palace at Rome."

* Of course the reader would not refer to Le Roy's book if he wished to see an approximation to a likeness. Fortunately for this country, one of these statues is at the British Museum. Representations of them are to be found in the "Antiquities of Athens," by Stuart and Revett.—[Ed.]

† See note suprà, page 168.—[Ed.]

I perfectly agree with M. Le Roy as to the beauty of the figures, but, whatever might have been the architect's inducement to enlarge his entablature, he certainly has done it to a monstrous excess; it seems calculated to crush the figures to atoms, and all that, in my humble idea, can either be said of the profile of the cornice, or the clumsy capitals on which the entablature stands, is, that far from deserving to be admired, they would scarcely be tolerated any where but in a traveller's book; and it seems very extraordinary that Monsieur Le Roy, who is himself a man of excellent taste, should applaud what in his own judgment he must condemn.

Jean Gougeon, in his beautiful composition at the Louvre above mentioned, has far surpassed this Greek specimen of the Caryatic order. His figures, which are twelve feet high, and of exquisite workmanship, stand on bases one sixth of that height; on their heads are capitals of the Doric order, of which the shape and proportion serve to decorate, but not to overload the head; the capitals support a tribune, forming the entablature, which consists of architrave, frieze, and cornice. It is richly decorated, of the Ionic order, and measures one-quarter of the height of the figures, including the bases on which they stand. By introducing these bases, the sculptor has artfully contrived to diminish the height, and consequently the bulk of his figures; and by a regular division of his entablature, he has rendered it light, at the same time that it is truly proportioned to the figures by which it is supported.

"It is not customary now, as formerly," says Le Clerc*, "to represent Caryatides with attributes of slavery and servitude. Such characters are too injurious to the Fair. On the contrary, they are at present considered as the richest, most valued ornaments of buildings, and represented under the figures of Prudence, Wisdom, Justice, Temperance, &c."

Freart de Chambrai† blames this practice, which he considers as the effect of inadvertency in the architects who first introduced it; observing, that if they had sufficiently reflected on the text of Vitruvius, with regard to the origin of Caryatides, they would have perceived the impropriety of employing the representations of saints and angels, loaded like slaves, with cornices and other heavy burdens; and likewise, that of employing the Caryatic order promiscuously in all sorts of buildings, particularly in sacred structures, which are the houses of God and asylums of mercy, where vengeance and slavery ought never to appear.

* Traité de l'Architecture, sect. 4.—[Ed.]

† Parallèle.—[Ed.]

On the other hand Blondel observes,* that though this remark be just, if the origin of these ornaments be rigorously attended to, yet to serve in any shape in the house of God, and in particular at the altar, has always appeared in the minds of the prophets and saints so glorious and great that not only men, but angels, ought to esteem it a happiness; and that consequently it can be no indication of disrespect to employ their representations in offices which they themselves would execute with pleasure.

The ancients, says the same author, made frequent use of Caryatic and Persian figures, and delighted in diversifying them in a thousand manners. The modern artists have followed their example, and there is a great variety of compositions of this kind to be met with in different parts of Europe, of some of which designs are exhibited in the annexed plate, and others may be invented and adapted to different purposes with great propriety, provided the figures introduced be analogous to the subject, as Mr. Ware† observes, and seem at least a necessary part in the composition. Thus, says Le Clerc,‡ if they are employed to support the covering of a throne, they may be represented under the figures and symbols of heroic virtues; if to adorn a sacred building, they must have an affinity to religion; and when they are placed in banqueting-rooms, ball-rooms, or other apartments of recreation, they must be of kinds proper to inspire mirth and promote festivity.

In composing them, particular care must be taken to avoid indecent attitudes, distorted features, and all kinds of monstrous or horrid productions, of which there are such frequent instances in the works of our northern predecessors. On the contrary, the attitudes must be simple and graceful; the countenances, though varied, always pleasing, and strongly marked with the expression peculiar to the occasion, or the object represented. There must be no variety in the general form or outline of the different figures employed in the same composition, and but little flutter in the draperies, which ought to sit close to the bodies of the figures, with folds contrived to express distinctly both their action and shape. Le Clerc observes, that they should always have

* Cours d'Architecture, Livre viii. c. 7, Seconde Partie. Latterly the daughters of Pandrosus have been copied with great accuracy, and employed moreover as *appliquées* to a Christian Church in the Metropolis. They have found admirers, even so exhibited.—[Ed.]

† Isaac Ware, Esquire, of his Majesty's Board of Works, the author of a book entitled "A Complete Body of Architecture," fol. London, 1756, a work of sterling merit, which, strange to say, seems little sought after in the present day. It relates to the practical as well as the theoretical and decorative part of the art, and, there is no doubt, was of infinite service to our author in his compilation of the work now before the reader. Mr. Ware translated the works of Palladio, fol., London, *s. a.*—[Ed.]

‡ Traité de l'Architecture.—[Ed.]

their legs close together, and the arms close to the body or head, that so they may have as much as possible the shape of columns, whose office they are to perform*; and it may be added, that for the same reason, their attitudes should be as nearly perpendicular as can conveniently be, without giving a stiff constrained air to the figures.

The same author observes, that Caryatides ought always to be of a moderate size; lest being too large they should appear hideous in the eyes of the fair sex; and indeed, as these figures are generally represented in endearing offices, and under the forms of amiable and benevolent beings, the caution seems very proper. It will therefore be judicious never to make them much larger than the human stature.

But male figures may, on the contrary, be of any size, the larger the better, as they will then be fitter to strike with awe and astonishment. There are few nobler thoughts, in the remains of antiquity, than Inigo Jones's† Persian Court; the effect of which, if properly executed, would have been surprising and great in the highest degree.

Male figures may be introduced with propriety in arsenals or galleries of armour, in guard rooms, and other military places, where they should represent the figures of captives, or else of martial virtues; such as Strength, Valour, Wisdom, Prudence, Fortitude, and the like. Their entablature must be Doric, and bear the same proportion to them as to columns of the same height; and the proper entablatures for Caryatides will be either Ionic or Corinthian, according as the character of the figures is more or less delicate.

Persian or Caryatic figures ought never to be employed to support the same entablature with columns; for figures of men or women, as high as columns, are considerably more bulky; and when they are of an uncommon size, convey an idea of greatness that entirely destroys the effect of the columns by making them appear very trifling. Neither should they be placed upon columns, as they are in the court of the Old Louvre at Paris, for the same reasons.

Palladio, sensible of this inconvenience, yet willing to introduce a specimen

* Traité de l'Architecture. Ware also gives the same advice.—[Ed.]

† In the design for the great palace at Whitehall. The court in question was proposed to be a circle whose diameter was 210 feet, bounded on the ground story by an open arcade, the piers between the arches of which were decorated by Persians on plinths, carrying an appropriate entablature. The upper story which extended over the void created by the arcade below, was ornamented between the windows with Caryatides, with capitals on their heads of the Corinthian order, carrying an entablature of that order, the whole surmounted by a balustrade. An architect may be permitted to regret the hypocritical and puritanical vagaries of those days, that led to a frustration of the design of building a palace here, which would have thrown all the present palaces of Europe into the back ground. See Inigo Jones's Designs, published by Kent, fol. 1727.—[Ed.]

of Persian figures, has in the Valmarana Palace at Vicenza, divided the large Composite pilasters which decorate the front into five parts; three of which he has given to a diminutive Corinthian order, squeezed into the inter-pilasters, and feebly sustaining the extremities of the fabric, while the remaining two parts are at the angles, occupied by figures on pedestals, as diminutive as the aforesaid Corinthian order, and introduced with as little propriety, more especially as they are made to support the ends of an enormous bulky Composite entablature, of which the height surpasses two-thirds of that of the figures themselves.

It is sometimes customary to employ Terms, instead of Caryatides or Persians, to support the entablatures of gates, monuments, chimney-pieces, and such like compositions. These figures owe their origin to the stones used by the ancients to mark the limits of each particular person's possessions. Numa Pompilius, to render these inviolable, and prevent encroachments, erected the Terminus into a deity, instituted festivals and sacrifices to his honour, and built a temple on the Tarpeian Mount, which he dedicated to him, and in which he was represented under the figure of a stone.

In process of time, however, the God Terminus was represented with a human head, placed on a post or stone, shaped like an inverted obelisk; which being on particular solemnities adorned with garlands, composed altogether a very pleasing form; to the imitation of which, may with great probability be attributed the introduction of these ornaments into building, where they have been varied into a great diversity of shapes. I have occasionally, in the course of this work, given some designs of them; and many others may be invented, and adapted to the particular purposes for which they shall be intended.

In consideration of their origin, the Termini are proper ornaments in gardens and in fields, where the upper part of them may represent Jupiter, who, in the remoter ages of antiquity, was protector of boundaries; or some of the rural deities, as Pan, Flora, Pomona, Vertumnus, Ceres, Priapus, Faunus, Sylvanus, Nymphs and Satyrs. Mr. Ware* recommends the use of them as boundaries to counties, where they may be enriched with ornaments allusive to the produce, manufacture, and commerce of each respective county.

The first three figures in the annexed plate of Persians and Caryatides, are copied from Candelabra in St. Peter's of the Vatican. They are cast from models of Michael Angelo Buonaroti, and repaired either by himself or

* In his "Complete Body of Architecture," page 250.—[Ed.]

doubtless under his direction, for the workmanship is very perfect. Figure 2 may be employed in buildings, but the others are more proper for the angles of covered ceilings, or other such ornamental works, being not unlike some introduced by the Caracci, in the Farnesian ceilings at Rome. No. 4 is a copy of one of the figures that surround the choir in the cathedral of Milan, which are the work of Andrea Biffi, a celebrated Milanese sculptor. No. 5 is executed in the Judgment-Hall of the Stadt-House of Amsterdam, by Artus Quellinus. No. 6 is an admired work of Michael Angelo, now in the Villa Ludovisi at Rome. No. 7 is, in part, by the same hand, and executed, from the waist upwards, in the monument of Pope Julius the Second, in the church of St. Peter ad Vincula,* at Rome. No. 8 is one of those executed by Jean Gougeon, in the Swiss Guard-room of the Old Louvre, at Paris, as has before been mentioned. Nos. 9 and 10 are taken from paintings of Daniel da Volterra, in the Church of the Trinità dei Monti, at Rome. No. 11 is a figure in basso relievo, on the Goldsmiths' arch at Rome; and No. 12 is copied from an original design of Polidoro da Caravaggio, now in my possession.

* Originally built by Baccio Pintelli, by order of Julius II., but altered to its present state by Francesco Fontana, in 1705.—[Ed.]

NOTE ON CARYATIDES, &c.

However interesting such inquiry may be to the archæologist, the origin of *Anthropomorphic* pillars is a matter of very little importance to the architect. What the latter has to study is how to treat such figures with propriety, and employ them—which can be but very seldom indeed—so as to give greater variety and richness to his composition. One very safe and simple rule to be observed is that such figures should be decidedly *architectonic*, and evidently intended to officiate as columns or supports to an entablature. Consequently they ought to be motionless as to attitude, perfectly serene in countenance, and evidently fully able to bear their superimposed burden without betraying even the slightest degree of effort. For the same reason that columns have their largest diameter below, so also should all figures which besides being statues, are employed constructively as pillars or actual supports, whether it be to horizontal entablatures or to arches. They ought to be so shaped as to their general mass as to convey at first sight the idea of perfect strength and stability. No figures therefore are so well suited for the purpose as those of females draped in long garments falling quite down to the feet in such manner that some of the folds spread out as a base. If instead of being insulated, figures of the kind are *engaged*, being then connected with the wall behind them, they will appear to stand sufficiently securely, though their bulk diminish downwards.

Of Caryatides proper, or genuine statue-pillars, two examples are given in Plate 11 (Grecian Architecture); those on the contrary, exhibited by Chambers himself, Plate 15, are all of them more or less faulty as regards fitness of character, and some of them have no pretension to be classed with figures of the kind at all, they being rather specimens of decorative sculpture and painting.

As convenient substitutes for entire figures of the kind we may make use of pillar and statue united, the latter being a half-figure, terminating at the waist, and growing out of a square shaft. In such combination there would be no impropriety, because its very arbitrariness and evident untruthfulness to nature at once get rid of the prosaic objection generally alleged against Caryatides, viz., the bad taste of employing figures in the human shape to support what would instantly crush to death any living persons, however strong. Such objection, then, surely refutes itself, it being impossible to mistake, even for a single instant, anthropomorphic pillars for other than they are—that is, architectonic statues fully capable of bearing the weight superimposed on them, which capability they ought distinctly to manifest; for bad or very questionable taste it undoubtedly is to represent them as crouching painfully and writhing beneath an overwhelming load. They ought, on the contrary, as a *sine-quâ-non* condition, invariably to express power adequate to the discharge of their function as pillars.

Although opportunities of introducing Caryatides are not of every-day occurrence, yet they need not be altogether so seldom and exceptional as they now are. How they could be introduced far more effectually than hitherto in composition must be left to the pencil to show, it being scarcely possible for the pen to explain.—[W. H. L.]

OF PEDESTALS.

Most writers consider the pedestal as a necessary part of the order, without which it is not esteemed complete. It is indeed a matter of small importance whether it be considered in that light or as a distinct composition; nevertheless, seeing that in the particular description given by Vitruvius,* of the Doric, Corinthian and Tuscan orders, no notice is taken of any pedestal, and that in the Ionic order, he only mentions it as a necessary part in the construction of a temple, without signifying that it belongs to the order, or assigning any particular proportions for it, as he doth for the parts of the column and the entablature,—I have judged it more regular to treat of the pedestal as a separate body, having no more connection with the order than has an attic, a basement, or any other part with which it may, on some occasions, be accompanied.

A pedestal, like a column or an entablature, is composed of three principal parts, which are the base, the die and the cornice. The die is always nearly of the same figure, being constantly either a cube or a parallelopiped; but the base and cornice are varied, and adorned with more or fewer mouldings according to the simplicity or richness of the composition in which the pedestal is employed. Hence pedestals are, like columns, distinguished by the names of Tuscan, Doric, Ionic, Composite and Corinthian.

Some authors are very averse to pedestals, and compare a column raised on a pedestal to a man mounted on stilts, imagining that they were

* "Stylobata," Pedestal, "Lib. iii. c. 3. *Uti quadræ, trunci, lysis, ad ipsum Stylobatam, qui erit sub columnæ spiris, conveniat.* Baldus: Plura in Stereobata de Stylobata diximus, quare hic pauca inculcabimus. Stylobata Græca vox, columnæ pedem, fulcimentumve denotat. Nostrates, *Piedistallo* dicunt Andreas vero Palladius dum Græcam vult originem aliquatenus referre, pedistillum scripsit, ac si diceret, columnæ pedem—Hybrida vox. Ego stallum à stylo non puto factum, sed à stando; quo vocabulo, licet barbaro, utuntur Pontificiarum legum periti, dum dicunt, Canonicis deberi locum in Capitulo, stallum in Choro. Piedistallum igitur dicemus, pedis nempe columnæ stallum, id est basis ipsius sedem." *Johan. de Laet de significatione vocabulorum quibus Vitruvius utitur.* The pedestal or stylobata was used in Grecian architecture, as on the west side of the Temple of Minerva Polias, and in the Choragic Monument of Lysicrates. In the Propylea we find the columns raised on insulated stylobatæ, but without a cornice, and with a plain plinth below them. [Ed.]

first introduced merely through necessity, and for want of columns of a sufficient length.

It is, indeed true that the ancients often made use of artifices to lengthen their columns, as appears by some that are in the Baptistery of Constantine, at Rome, the shafts of which being too short for the building, were lengthened and joined to their bases by an undulated sweep, adorned with acanthus leaves, and the same expedient has been made use of in some fragments which were discovered a few years ago at Nismes, contiguous to the Temple of Diana. Nevertheless, it doth not seem proper to comprehend pedestals in the number of these artifices, since there are many occasions on which they are evidently necessary, and some in which the order, were it not so raised, would lose much of its beautiful appearance. Thus, within our churches, if the columns supporting the vault were placed immediately on the ground, the seats would hide their bases and a good part of their shafts; and in the theatres of the ancients, if the columns of the scene had been placed immediately on the stage, the actors would have hid a considerable part of them from the audience; for which reason it was usual to raise them on very high pedestals, as was likewise customary in their triumphal arches, and in most of their temples, the columns were placed on a basement or continued pedestal, that so the whole order might be exposed to view, notwithstanding the crowds of people with which these places were frequently surrounded. And the same reason will authorize the same practice in our churches, theatres, courts of justice, or other public buildings where crowds frequently assemble.

In interior decorations, where, generally speaking, grandeur of style is not to be aimed at, a pedestal diminishes the parts of the order which, otherwise, might appear too clumsy; and has the farther advantage of placing the columns in a more favorable view, by raising their base nearer to the level of the spectator's eye. And in a second order of arcades there is no avoiding pedestals, as without them it is impossible to give the arches any tolerable proportion.

Sometimes too the situation makes it necessary to employ pedestals, an instance of which there is in the Luxembourg Palace at Paris*; where, the body of the building standing on higher ground than the wings, the architect

* Built from the designs of Jacques de Brosse, a French architect, who flourished during the regency of Mary of Medicis. This palace was begun in 1615, and completed in 1620, the gateway excepted, which was the work of De Boffrand.

De Brosse built the aqueduct of Arcueil, by which he acquired much reputation. He engaged occasionally in the arts of Painting and Sculpture, but of his success therein much cannot be said.—[Ed.]

was obliged to raise the first order of the wings on a pedestal, to bring it upon a level with that of the body, or *corps de logis* of the building which stands immediately upon the pavement.

These instances will sufficiently show the necessity of admitting pedestals in decorations of architecture. With regard to the proportion which their height ought to bear to that of the columns they are to support, it is by no means fixed, the ancients, and moderns too, having in their works varied greatly in this respect, and adapted their proportions to the occasion, or to the respective purposes for which the pedestals were intended. Thus, in the amphitheatres of the ancients, the pedestals in the superior orders were generally low, because in the apertures of the arches they served as rails to inclose the portico, and therefore were, for the conveniency of leaning over, made no higher than was necessary to prevent accidents; and the case is the same in most of our modern houses, where the height of the pedestals in the superior orders is generally determined by the cills of the windows. The ancients, in their theatres, made the pedestals in the first order of their scene high, for the reason mentioned in the beginning of this chapter, but the pedestals in the superior orders were very low, their chief use being to raise the columns so as to prevent any part of them from being hid by the projection of the cornice below them; and thus, on different occasions, they used different proportions, being chiefly guided by necessity in their choice. The moderns have followed their example, as will appear to any one who examines the works of Palladio, of Vignola, of Michael Angelo, Scamozzi, and many other famous architects.

Nevertheless, writers on architecture have always thought it incumbent upon them to fix a certain determinate proportion for the pedestal, as well as for the parts of the order. It would be useless to enumerate in this place their different opinions, but I must beg leave to observe that Vignola's method is the only true one.* His pedestals are, in all the orders, of the same height, being one-third of the column, and as their bulk increases or diminishes, of course in the same degree as the diameters of their respective columns do, the character of the order is always preserved, which, according to any other method, is impossible.

In the designs which I have given of arches with pedestals, the pedestals

* "Ancorchè nell' Ordine Toscano rare volte occorra di farvi il Piedestallo, nondiméno l'ho posto qui in disegno per seguire la disposizione; avvertendo che in tutti i cinque ordini (e ciò serva di regola generale) ho osservato, i piedestalli, con i suoi ornamenti, dover essere la terza parte della sua Colonna; colla base, e capitello," &c. Vignola, Capitolo terzo.—[Ed.]

are all of the same height, each of them being three-tenths of the height of their respective columns; but it is not necessary to adhere always to this proportion; they may be higher or lower, as the occasion shall require. It is, however, to be observed, that when pedestals are profiled under each column, and the dye is much less than a square in height, the pedestal has a clumsy appearance; and when a pedestal of the same kind exceeds one-third of the height of the column, it has a lean, unsolid, tottering aspect. But if they are continued without any breaks, this need not be attended to; though indeed there are very few occasions in which pedestals higher than one-third of the column ought to be suffered, as they lessen too much the parts of the order, and become themselves too principal in the composition.

With regard to the divisions of the pedestal, if the whole height be divided into nine parts, one of them may be given to the height of the cornice, two to the base, and the remaining six to the dye; or if the pedestal is lower than ordinary, its height may be divided into eight parts only, of which one may be given to the cornice, two to the base, and five to the dye, as Palladio has done in his Corinthian order, and Perrault in all the orders.*

The plan of the dye is always made equal to that of the plinth of the column, the projection of the cornice may be equal to its height, and the base, being divided into three parts, two of them will be for the height of the plinth,

* Ordonnance des cinq Espèces de Colonnes. 1 Partie, ch. 6 and 7.

The following table shows the height of pedestals in antique and modern works, in minutes, each $= \frac{1}{60}$ of the diameter of the shaft.

		Plinth.	Mouldings above Plinth.	Dye.	Cornice.	Total Height.
		MIN.	MIN.	MIN.	MIN.	MIN.
Doric	Palladio	26	14	80	20	140
	Scamozzi	30	15	$68\frac{4}{7}$	$22\frac{1}{2}$	$136\frac{1}{11}$
Ionic	Temple of Fortuna Virilis	44	$19\frac{3}{4}$	$93\frac{3}{4}$	$23\frac{1}{4}$	$180\frac{3}{4}$
	Coliseum	$33\frac{1}{4}$	$9\frac{1}{2}$	$81\frac{5}{6}$	17	$141\frac{1}{2}$
	Palladio	$28\frac{2}{3}$	$14\frac{1}{3}$	$97\frac{3}{4}$	$21\frac{1}{2}$	$162\frac{1}{4}$
	Scamozzi	30	15	$82\frac{1}{2}$	$22\frac{1}{2}$	150
Corinthian	Arch of Constantine	$17\frac{1}{2}$	29	153	$29\frac{1}{2}$	228
	Coliseum	23	$11\frac{1}{2}$	78	$19\frac{1}{4}$	$131\frac{3}{4}$
	Palladio	$23\frac{1}{2}$	$14\frac{1}{2}$	93	19	150
	Scamozzi	30	15	$132\frac{1}{2}$	$22\frac{1}{2}$	200
Composite	Arch of Titus	55	30	141	29	255
	Arch of the Goldsmiths	46	$25\frac{1}{4}$	$144\frac{1}{2}$	$25\frac{1}{4}$	241
	Palladio	33	17	133	17	200
	Scamozzi	30	15	$112\frac{1}{2}$	$22\frac{1}{2}$	180
	Arch of Sept. Severus	30	$30\frac{5}{6}$	$140\frac{1}{2}$	$29\frac{5}{6}$	$182\frac{1}{6}$

—[Ed.]

and one for the mouldings, of which the projection must be somewhat less than the projection of the cornice, that so the whole base may be covered and sheltered by it,—a precaution which Scamozzi has observed in all his designs, though Palladio has neglected it in the greatest part of his, the palace of the Porti, and one or two other buildings in the Vicentine, excepted.

These measures are common to all pedestals, and in the annexed plate there are designs of proper ones for each order, in which the forms and dimensions of the minuter parts are accurately drawn and figured.

It is sometimes customary to adorn dyes of pedestals with projecting tablets, or with panels sunk in and surrounded with mouldings. The former of these practices ought seldom to be admitted, as these tablets alter the general figure of the pedestal, and when they project much give it a heavy appearance, and the latter should be reserved for very large pedestals only, of such kinds as those supporting the Trajan and Antonine columns at Rome, and the Monument in London, where they may be filled with inscriptions or adorned with bas-reliefs, analogous to the occasion on which the column was erected. Even in the largest buildings pedestals are commonly too small to admit of such ornaments, which only serve to give them an unsolid trifling appearance, and contribute to complicate, without improving, the composition.

With regard to the application of pedestals, it must be observed that when columns are entirely detached and at a considerable distance from the wall, as when they are employed to form porches, peristyles, or porticos, they should never be placed on detached pedestals, as they are in some of Scamozzi's designs, in the temple of Scisi,* mentioned by Palladio, and at Lord Archer's House, now Lowe's Hotel, in Covent Garden; for then they may indeed be compared to men mounted on stilts, as they have a very weak and tottering appearance. In compositions of this kind, it is generally best to place the columns immediately upon the pavement, which may either be raised on a continued solid basement, or be ascended to by a flight of fronting steps, as at St. Paul's, and at St. George's, Bloomsbury;† but if it be absolutely necessary

* See note, page 165.—[Ed.]

† "'Twill be impossible to pass by the new church of St. George, Bloomsbury, without giving it a very particular survey; 'tis built all of stone, is adorned with a pompous portico, can boast many other decorations, has been stinted in no expense, and yet, upon the whole, is ridiculous and absurd, even to a proverb. The reason is this; the builder mistook whim for genius, and ornament for taste. He has even erred so much that the very portico does not seem to be in the middle of the church, and as to the steeple, it is stuck on like a wen to the rest of the building: then the execrable conceit of setting up the king on the top of it, excites nothing but laughter in the ignorant, and contempt in the judge. In short 'tis a lasting reflection on the fame of the architect, and the understanding of those who employed him."

to have a fence in the intercolumniations, as in the case of bridges and other buildings on the water, or in a second order, the columns may then, in very large buildings, be raised on a continued plinth, as in the upper order of the western porch of St. Paul's, which, in such case, will be sufficiently high ; and in smaller buildings, wherever it may not be convenient nor proper to place the balustrade between the shafts, the columns may be raised on a continued pedestal, as they are in Palladio's design for Signor Cornaro's house at Piombino, and at the Villa Arsieri, near Vicenza, another beautiful building of the same master.

The base and cornice of these pedestals must run in a straight line on the outside throughout ; but the dyes are made no broader than the plinths of the columns, the intervals between them being filled with balusters, which is both really and apparently lighter, than if the whole pedestal were a continued solid.

It will be superfluous to caution our English architects against employing triangular, circular, or polygonal pedestals in their buildings, or such as are swelled and have their dye in the form of a baluster, or are surrounded with cinctures. Such extravagances, though frequent in some foreign countries, are seldom to be met with in England, and are now laid aside wherever good taste prevails.

In my designs of pedestals* I have represented them under the proportions observed by me in arches with pedestals, but when it is necessary to vary the general height, the measures of the particular members may easily be determined, by dividing the whole height in the Tuscan order into $4\frac{1}{5}$ parts, in the Doric into $4\frac{4}{5}$, in the Ionic into $5\frac{2}{5}$, and in the Composite or Corinthian into 6 parts, making use of one of these parts as the module, and determining the heights and projections of the different members according to the figures marked in the designs.

Critical Review of the Buildings in London, 8vo. 1734. Ralph (*a*) is, not without reason, severe on the steeple in the above critique, but there is, nevertheless, much to admire in the detail of this church, which was built by Nicholas Hawksmoor, a pupil of Sir Christopher Wren.—[Ed.]

* See Pl. of Pilasters.

(*a*) Ralph, perhaps, showed more wit than taste. St. George's, Bloomsbury, is not, indeed, without its faults; the five small doors, with as many windows over them, detract sadly from the dignity of the portico ; yet, in spite of such drawbacks, that church, taken upon the whole, proclaims its architect to have been an artist. As to the statue on the steeple, it tells admirably from almost every point of view. It certainly is not the fashion to profess admiration of Hawksmoor's campanile, but it is infinitely more *cumorphic* than any of Wren's steeples.—[W. H. L.]

OF THE APPLICATION OF THE ORDERS OF ARCHITECTURE.

Among the ancients the use of the orders was very frequent; many parts of their cities were provided with spacious porticos, their temples were surrounded with colonnades, and their theatres, baths, basilicæ, triumphal arches, mausolea, bridges, and other public buildings, were profusely enriched with columns, as were likewise the courts, vestibules, and halls of their private villas and houses.

In imitation of the ancients, the moderns have made the orders of architecture the principal ornaments of their structures. We find them employed in almost every building of consequence, where they are sometimes merely ornamental; but at others they are of real use as well as ornament, serving to support the covering, or any other burdens placed upon them. On some occasions they are employed alone, the whole composition consisting only of one or more ranges of columns with their entablature. At other times the intervals between the columns are filled up, and adorned with arches, doors, windows, niches, statues, bas-reliefs, and other similar inventions. The columns are either placed immediately on the pavement, or raised on plinths, pedestals or basements, either engaged in the walls of the building, or standing detached, near or at some distance from them; and frequently different orders are placed one above the other, or intermixed with each other on the same level. In all these, and in all other cases in which the orders are introduced, particular measures, rules and precautions are to be observed, of which I shall endeavour to give a full detail in the following chapters.

OF INTERCOLUMNIATIONS.

Columns are either engaged or insulated, and when insulated they are either placed very near the walls or at some considerable distance from them.

With regard to engaged columns, or such as are near the walls of a building, the intercolumniations are not limited, but depend on the width of the arches, windows, niches or other objects, and their decorations, placed within them. But columns that are entirely detached, and perform alone the office of supporting the entablature, as in peristyles, porches and galleries, must be near each other, both for the sake of real and apparent solidity.

The ancients had several manners of spacing their columns, which are described by Vitruvius in his third and fourth books. Those practised in the Ionic and Corinthian orders were, the Pycnostyle,* of which the interval was equal to one diameter and a half of the column ;† the Systyle interval,‡ of two diameters ; the Eustyle,§ of two diameters and one quarter ; the Diastyle,‖ of three diameters ; and the Araeostyle,¶ of four. In the Doric order they used other intercolumniations, regulating them by the triglyphs, of which one was always to be placed directly over the middle of each column, so that they were either systyle monotriglyph, of one diameter and a half; diastyle, of two diameters and three quarters ; or araeostyle, of four diameters ; and the Tuscan intervals were exceedingly wide, some of them being above seven diameters, which, as the architraves were of wood, was practicable.

Among these different intercolumniations, the pycnostyle and systyle are too narrow, and though M. Perrault imagines, from their frequency in the remains of antiquity, that the ancients delighted more in them than in any of the others, yet, I believe their use must be ascribed rather to necessity than to choice ; for as the architraves were composed of single stones or blocks of marble, extending from the axis of one column to that of another, it would

* See Pl. of Intercolumniations.

† From *Πυκνοστυλος*, qui est crebris columnis, ex *πυκνος* & *στυλος*.—[Ed.]

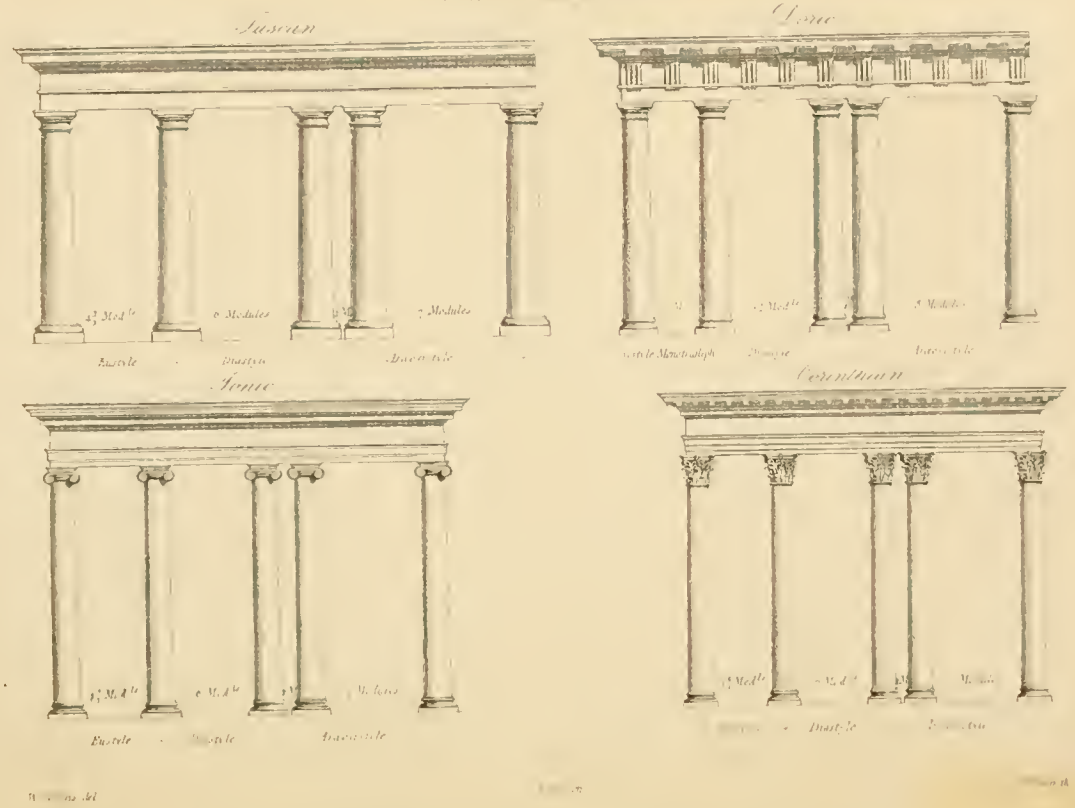
‡ From *Συστυλος*, qui est columnis paulò remissioribus.—[Ed.]

§ From *Ευστυλος*, cujus columnæ justis intervallis distributæ sunt.—[Ed.]

‖ From *Διαστυλος*, qui est columnis inter se extensis.—[Ed.]

¶ From *Αραιοστυλος*, raras columnas habens.—[Ed.]

Intercolumniations.



Published by the Proprietors of the Building News 1860

have been difficult to find blocks of a sufficient length for diastyle intervals in large buildings.

With regard to the aræostyle and Tuscan intercolumniations, they are by much too wide, either for beauty or strength, and can only be used in rustic structures, where the architraves are of wood, and where convenience or economy takes place of all other considerations; nor is the diastyle sufficiently solid in large compositions. The eustyle, therefore, being a medium between the narrow and wide intervals, and at the same time being both spacious and solid, has been preferred by the ancients as well as moderns to any of the rest.

Vitruvius, in the second chapter of his third book, says that the thickness of the column should be augmented when the intercolumniation is enlarged, so that if, in a pycnostyle, the diameter is one-tenth of the height, it should in an aræostyle be one-eighth; for if, says he, in an aræostyle the thickness of the columns do not exceed a ninth or tenth part of their height, they will appear too slender and delicate, whereas, if in a pycnostyle, the diameter of the column be equal to one-eighth of its height, it will appear gouty, and disagreeable to the eye.

The intention of Vitruvius was good, but the means by which he attempts to compass it are insufficient. His design was to strengthen the supports in proportion as the intervals between them were enlarged; yet, according to the method proposed by him, this cannot be effected, since one necessary consequence of augmenting the diameter of the column is enlarging the intercolumniation proportionably. Palladio and Scamozzi have, however, admitted this precept as literally just, and, by their manner of applying it, have been guilty of a very considerable absurdity.

It is evident that Vitruvius intended the five intercolumniations mentioned in his third book merely for the Ionic and Corinthian orders, the latter of which, according to him, differed from the former only in its capital; for in the second and seventh chapters of his fourth book, he establishes other intervals for the Doric and Tuscan orders. Nevertheless, they have employed these intercolumniations in different orders. Palladio has used the systyle in the Corinthian and the aræostyle in the Tuscan; by which means the Corinthian peristyle, of which the character should be extreme delicacy and lightness, becomes twice as strong and material as the Tuscan, of which the distinguishing characteristic ought to be extreme solidity; and Scamozzi has fallen into the same error, though not to so great an excess, his Tuscan intercolumniation being only diastyle.

It may perhaps be alleged, in favour of this precept of Vitruvius, that by

following his doctrine, the solidity of the column is increased or diminished in a greater degree than the breadth of the interval; the difference of the latter between columns of eight or ten diameters in height, being only as eighty to one hundred, whereas that of the former is as sixty-four to one hundred. But the apparent magnitudes of cylindrical bodies viewed in a vertical position, are to each other nearly in the same ratio as their diameters, not as their solid contents; and as the bulk of the architrave and other parts of the entablature vary exactly in the same proportion as that of the column does, the real strength of the structure is not in the least affected by it.

Vignola has observed nearly one and the same proportion in all his intercolumniations, which practice, though condemned by several eminent writers, is certainly preferable to any other, as it answers perfectly the intention of Vitruvius, preserves the character of each order, and maintains in all of them an equal degree of real solidity.

Setting therefore aside the pycnostyle and systyle dispositions, on account of their want of space, and the araeostyle for its deficiency in point of strength, it may be established, that the diastyle intercolumniation, and the eustyle, of which the latter ought, on most occasions, to have the preference, may be employed without distinction in all the orders excepting the Doric; in which the most perfect interval is the ditriglyph; neither the monotriglyph nor the araeostyle being to be admitted but in cases of necessity.

It is however to be observed, that if the measures of Vitruvius be scrupulously adhered to with regard to the eustyle interval, the modillions in the Corinthian and Composite cornices, and the dentils in the Ionic, will not come regularly over the middle of each column. The ancients, generally speaking, were indifferent about these little accuracies; but the moderns, taking example by some of the chastest remains of antiquity, have, with reason, strictly attended to them. A trifling alteration will remedy this defect, and being attended with no inconveniency, it may without hesitation be allowed. I shall, therefore, in imitation of Vignola, instead of two diameters and a quarter, give two diameters and one-third to the eustyle intercolumniation; not only in the Ionic, Corinthian, and Composite orders, but likewise in the Tuscan; for I would endeavour to simplify the art, and avoid an unnecessary increase of rules, in a science already too much encumbered with them.

Sometimes, on account of the windows, doors, niches, or other decorations, which correspond with the intercolumniations in the peristyle or gallery, it is not possible to make the intervals so narrow as eustyle, or even as diastyle; wherefore the moderns, authorized by some few examples of antiquity, where

grouped columns are employed, have invented a manner of disposing them, by Perrault, called Aræosystyle, which admits of a larger interval, without any detriment to the apparent solidity of the building. This kind of disposition is composed of two systyle intercolumniations, the column that separates them being approached towards one of those at the extremities, sufficient room being only left between them for the projection of the capitals, so that the great space is three diameters and a half wide, and the small one only half a diameter.

This manner has been applied with success in the porch of St. Paul's, in London, and on the principal front of the Old Louvre, in Paris; the decorations of the niches in the last of these buildings having required such wide intercolumniations that they could never have been tolerated without coupled columns.

M. Blondel, in his *Cours d'Architecture*, employs several chapters of his first book, part 3, to prove the absurdity of the aræosystyle disposition. His principal objections are its want of real solidity, its great expense, since near double the quantity of columns are required that would be sufficient in the diastyle, and the irregularities which it occasions in the Doric, Corinthian and Composite entablatures.

These objections are too considerable not to deserve attention, and it will always be best to avoid the grouping of columns. Nevertheless, if on any occasion, either to humour the fancy of some capricious patron, or to conquer some other insurmountable difficulty, it should be found necessary to introduce them, they may doubtless be employed, care however being taken to use such precautions as will render the irregularities, occasioned by this disposition, least striking and disagreeable.

In the Tuscan or Ionic orders, no precautions will be found necessary; the entablature in the former of these being entirely plain, and in the latter only enriched with dentils, which admit of a regular distribution, in all intervals divisible by thirds of modules. But in the Corinthian and Composite, it must be observed, that if the modillions are regularly disposed, and spaced according to their just measures, they will answer neither in the large nor little intercolumniation, so as to have one of them over the middle of each column.

To remedy this defect, Perrault, the architect of the peristyle of the Louvre, has enlarged both the modillions and the spaces between them, the distance from one centre to another, in the broad intervals, being one module, thirteen minutes; and in the narrow ones, one module, fifteen minutes. This method, though tolerable in that building, where the dentil band is not cut, and the angles are terminated by undiminished pilasters, will not answer in most

other cases: for, either the whole cornice must be enlarged and all its proportions changed, or the modillions will not fall regularly over the dentils; the coffers in the soffit will be oblong instead of square, and the space between the last modillion and that over the angular column, will be less by far than any of the others: all which are irregularities too great to be tolerated.

The simplest and best manner of proceeding is to observe a regular distribution in the entablature, without any alteration in its measures, beginning at the two extremities of the building, by which method the modillions will answer to the middle of every other column, and be so near the middle of the intermediate ones that the difference will not easily be perceivable. The only inconvenience arising from this practice is, that the three central intercolumniations of the composition will be broader by one-third of a module, than is necessary for eleven modillions; but this is a very trifling difference, easily divided and rendered imperceptible if the extent be anything considerable.

In the Doric order, grouped columns are not so easily managed; and though they have been employed in many considerable buildings, and by eminent architects, yet, in very few of them have they been properly treated. At the church of St. Gervais,* and several other buildings in Paris, the metope between the coupled columns is much broader than any of the others; at the Minims† near the *Place Royale*, that the metope might be square, the bases of the columns are made to penetrate each other; at the castle of Vincennes,‡ the height of the frieze is considerably augmented for the same reason; and Scamozzi, wherever he joins together two Doric columns or pilasters, omits the base of one of them, substituting a plinth in its place, that so the interval may not be too broad to admit of a regular metope.

None of these methods are good, nor equal to that which Palladio has practised at the palace of Count Chiericato, and in the Basilica at Vicenza. In the latter of these, the interval between the coupled columns is twenty-one minutes only; so that the distance, from the axis of one column to that of the other, is two modules, twenty-one minutes; or six minutes more than is sufficient for a regular metope and two half-triglyphs. In order to hide this excess, each of the triglyphs is thirty-one minutes broad, their centres are each of them removed one minute within the axis of the column, and the metope is three minutes broader than the others; a difference so trifling that it cannot

* Built by Jacques de Brosse, see note page 196.—[Ed.]

† The last work of François Mansard, an account of whom will be found in a subsequent note.—[Ed.]

‡ Doric court designed by Le Vau—"dove," says Milizia, "aumentò l'altezza delle colonne d'un módulo per accrescer quella del frègio, e render così regolàri i triglìfi e le mètope."—[Ed.]

be perceived without great difficulty, more especially as the next metopes to the wide one become, by the removal of the triglyphs above mentioned, each one minute wider than the rest in the composition.

When, therefore, grouping of columns cannot be avoided in the Doric order, the Attic base of Palladio must be employed, on account of its small projection; the great interval must be aræostyle, and the small one twenty-one minutes, which leaves a space of one minute between the plinths of the coupled columns.

In peristyles, galleries or porticos all the intercolumniations must be equal; but in a loggia, or a porch, the middle interval may be broader than the others, by a triglyph, a couple of modillions, or three or four dentils, unless the columns at the angles be either coupled or grouped with pilasters; in which cases, all the other intervals should be of the same dimension. For when they are of different widths, as at the Sorbonne,* and the College Mazarin † in Paris, it creates confusion, and the unity of the composition suffers thereby.

Blondel‡ observes, that when peristyles, or colonnades are composed of more than one row of columns, as are those of the piazza of St. Peter's at Rome, they should neither be of circular nor polygonal figures, but continued as much as possible in straight lines; because in either of the former cases, the regular disposition of the columns is only perceivable from the centre of the figure; the whole appearing, from all other points, a disagreeable heap of confusion. This remark is very just. I have frequently observed and regretted the bad effect of a circular disposition in the above-mentioned magnificent structure, where the four ranges of columns of which the colonnades are composed, offer nothing but confusion to the spectator's eye from every point of view.

The same inconveniency, though in a smaller degree, subsists with regard

* Designed by Le Mercier, the same architect who gave designs for the Palais Royal at Paris. It was built at the expense of Cardinal Richelieu—first stone laid in 1650, finished 1653.—[Ed.]

† Now Collège des Quatre Nations—founded by Cardinal Mazarin, for the education of young gentlemen from the four nations conquered by Louis XIV. It was begun on the designs of Le Veau, and finished by Lambert and Dorbay in 1662.—[Ed.]

‡ Je ne sortirois jamais de cette matière si je voulois entrer dans un plus grand détail de la figure, et de la grandeur des Portiques, je me contenteray de dire que pour avoir agréablement la suite des Colonnes dans les Péristyles ou Colonnades Polystiques, c'est à dire qui ont plus d'une file, il est bon de les faire en ligne droite et sans retour. Ce qui fait que je ne voudrois pas conseiller de les faire ni rondes n'y à pans sans grande necessité, parceque ces figures ne permettent pas que la veüe jouisse tout à la fois de la beauté de l'arrangement des Colonnes, qui sont interrompües par le concours de celles qui sortent de leur alignement droit," &c. Blondel, Cours d'Architecture. Troisième partie, liv. i. chap. 14. He then proceeds to a criticism on the colonnade in front of St. Peter's, in which there is much truth and justice.—[Ed.]

to engaged pilasters, or half columns, placed behind the detached columns of single, circular, oval, or polygonal peristyles, as may be seen in those of Burlington House. Wherefore, in buildings of that kind, it will perhaps be best to decorate the back wall of the peristyle with windows or niches only.

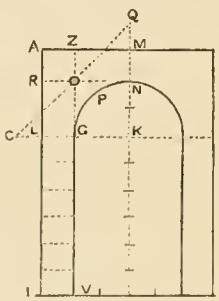
When buildings are to be executed on a small scale, as is frequently the case of temples, and of other inventions, used for the ornament of gardens, it will be found necessary to make the intercolumniations, or at least the central one, broader in proportion to the diameter of the columns than usual; for when the columns are placed nearer each other than three feet, there is not room for a fat person to pass between them.

NOTE ON INTERCOLUMNIATION.

The rules laid down by Vitruvius for regulating the several modes of intercolumniation, or spacing of columns according to certain fixed measurements and names, are of no practical value whatever. The intervals between the columns or width of the intercolumns must depend upon and be governed by a variety of circumstances connected with each particular case, and on the character of the general composition, which also has to be taken into account. As regards the proportions of the intercolumns, it surely makes a very great difference whether the columns be six or ten diameters in height. As regards the proportions of intercolumns, one tolerably safe general rule is that they should not be less than three nor much more than four squares in height. Even that leaves, however, a wide margin for exceptions, for in what professes to be art all rules of the kind ought to be looked upon as no more than indefinite normal directions. What further may here be remarked is that it is a solecism to make use of the term intercolumniation, in the plural number in the sense of intercolumn, for we might with equal propriety call columns columniations, or windows fenestrations.—[W. H. L.]

OF ARCADES AND ARCHES.

ARCHES though not so magnificent as colonnades, are stronger, more solid and less expensive.* They are proper for triumphal entrances, gates of cities, of palaces, of gardens and of parks; for arcades or porticos round public



* In note, page 119, mention has been made of Le Brun's Théorie de l'Architecture. In its application to vaulting and arches, he proceeds upon the same principles as in the foregoing part he does for the columnar arrangements of the orders. There is so much ingenuity in the author's researches, and the application of his theory, to say the least of it, so generally produces an elegant result, that it may not be uninteresting nor uninstructive to glance at it in this place; it is not given here for the purpose of leading the student to believe it will assist him in equilibrating his arch, which is a science that would require a distinct and elaborate treatise. This caution is necessary because a dependence upon the construction in question might in some cases be attended with ill consequences.

Le Brun's principle is, "that the burthen shall be equal to the support," or in other words, "that the surface A M N G L = L G I V—and that in vaulting, the part Z G M N which hangs over should be equal to that A Z L G which has a solid bearing, and that then $\frac{\text{M N Z G}}{\text{Z G}}$ = L G the thickness of the pier.

The "two surfaces of the burthen A L G Z and Z G M N are not *exactly* equal, because the triangle G O N is incommensurable; but we will dispense with mathematical precision, and take the proportion of the diameter to the circumference as 7 : 21. In this case the surface of a circle inscribed in a square will be three quarters of the superficies of the square. The triangle G O N and the rectangle R A Z O will be a sixteenth part of the square, or, which is the same thing, they will each = square of half the radius. Thus the two parts of the burthen R O L G and M Z O N will be equal. In respect of the supports, it is to be observed that one half of the burthen only acts on the support, by reason of the distance of its centre of gravity from the vertical Z G. But this centre is somewhere in a line P A, directed towards the centre of the arch, since A P G L = A P M N. Thus the common centre of the two parallelograms A M R N and A Z G L is in O, in the direction Q C. Hence, by the augmentation of the incommensurable triangle O N G, the centre of gravity will be somewhere from P to O; and since the weight overhanging, and that whose bearing is solid are equal, Z G M N which overhangs, draws or thrusts A Z L G, on account of distance of the centre of gravity in O P from the vertical Z G, for if this centre was in the direction of the vertical, the action either way would be annihilated.

"This being the case, if we divide the surface of half the arcade by the width L G, we shall have the rectangle L G I V. From this equality between the burthen and support, the height of the arch will be found equal to twice its width.

"Arcades, whose key-stone is less than one-fourth of the diameter of the arch, can have the support and burthen equal, but those whose key-stone is deeper will not comply with those conditions, because the supports only augment in width; if they also increased in height, stability would be wanting, on account of their resistance diminishing in an inverse ratio as the height of the centre of gravity increased. In this case, in order that the supports may be stable, when the depth of the key-stone is more than half the radius, the height of the arch must never exceed twice its width."—See Le Brun, page 23.—[ED.]

squares, markets or large courts, and in general for all apertures that require an extraordinary width. In Bologna, and some other cities of Italy, the streets are on each side bordered with arcades, like those of Covent Garden and the Royal Exchange, which add greatly to their magnificence. In hot or rainy climates, these arcades are exceedingly convenient to passengers, affording them both shade and shelter; but on the other hand, they are a great nuisance to the inhabitants, as they darken their apartments, hinder a free circulation of air, and serve to harbour idle and noisy vagabonds, who crowd their entrances and disturb their quiet. At Rome, the Courts of the Vatican, those of Monte Cavallo, of the Borghese, and of many other palaces, are likewise surrounded with arcades, where the equipages and domestics attend under cover, some of them being sufficiently spacious to admit two or three coaches abreast. Such conveniences would be very useful in this metropolis, particularly contiguous to the Court, to the Houses of Parliament, to churches, to all places of public amusement, and even to most town habitations of the nobility and principal gentry, where numerous fine equipages and valuable horses stand half the night, exposed to all weathers. But the scarcity and prodigious value of ground in the fashionable or commercial parts of the town, render them, in general, unattainable.

There are various manners of decorating arches; sometimes their piers are rusticated, at others they are adorned with pilasters, columns, terms, or Caryatides; and on some occasions they are made sufficiently broad to admit niches or windows. The circular part of the aperture is either surrounded with rustic arch stones, or with an archivolt, enriched with mouldings, which in the centre is generally interrupted by a key-stone in form of a console, a mask, or some other proper ornament of sculpture, serving, at the same time, as a key to the arch, and as a seemingly necessary support to the architrave of the order. Sometimes the archivolt springs from an impost placed at the top of the pier, and at others from columns with their regular entablature or architrave cornice placed on each side of the arch, and there are some instances of arcades without any piers, the arches being turned from single or coupled columns, sometimes with, sometimes without entablatures; as in the Temple of Faunus at Rome, and at the Royal Exchange in London, which however is a practice seldom to be imitated, being neither solid nor handsome.

When arches are large the key-stone should never be omitted, but cut into the form of a console, and carried close up under the soffit of the architrave; which by reason of its extraordinary length of bearing, requires a support in the middle. And if the columns that adorn the piers are detached,

as in the triumphal arches at Rome, it is necessary to break the entablature over them, making its projection in the interval no more than if there were no columns at all; for, though the architrave might be made sufficiently solid, yet it would be disagreeable to see so great a length of entablature hanging in the air, without any prop or apparent support.

It is, however, to be remembered that these breaks in entablatures should be very sparingly employed, never indeed but to avoid some considerable inconvenience or deformity; for they are unnatural, render the columns or other supports apparently useless, destroy, in a great measure, the simplicity of the composition, and can seldom be contrived without some mutilations or striking irregularities in the capitals and cornices of the orders, as may be observed in several parts of the inside of St. Paul's in this city, and in many other places.

The imposts of arches should never be omitted; at least if they are, a plat-band ought to supply their place: and when columns are employed without pedestals in arcades, they should always be raised on plinths, which will serve to keep them dry and clean, prevent their bases from being broken, and improve the proportions of the arches, particularly in the Doric order, where the intercolumniations being governed by the triglyphs, are rather too wide for a well proportioned arch. In all arches it is to be observed that the circular part must not spring immediately from the impost, but take its rise at such a distance above it as may be necessary to have the whole curve seen at the proper point of view. When archivolts are employed without a key or console in their middle, the same distance must be preserved between the top of the archivolt and the architrave of the order as when there is a key, or at least half that distance, for when they are close to each other their junction forms an acute and disagreeable angle.

The void or aperture of arches should never be much more in height, nor much less than double their width; the breadth of the pier should seldom exceed two-thirds, nor be less than one-third, of the width of the arch, according to the character of the composition; and the angular piers should be broader than the rest by one-half, one-third, or one-fourth. The archivolt and impost must be proportioned to the arch, due care being, however, taken to keep them subservient to the cornice, the architrave, and other principal parts of the order. For this reason the height of the impost should not be more than one-seventh, nor need it ever be less than one-ninth, of the width of the aperture; and the archivolt must not be more than one-eighth, nor less than one tenth thereof. The breadth of the console or mask, which serves as a key

to the arch, should, at the bottom, be equal to that of the archivolt, and its sides must be drawn from the centre of the arch. The length thereof ought not to be less than one and a half of its bottom breadth, nor more than double.

The thickness of the piers depends on the width of the portico, and the weight which the arcade has to carry above, for they must be strong enough to bear the burthen, and to resist the pressure of the portico's vault. But with regard to the beauty of the building, it should not be less than one quarter of the width of the arch, nor more than one-third; and when arches are closed up, to receive doors, windows, or niches, the recesses should be deep enough at least to contain the most prominent parts of what is placed in them; otherwise the architecture will appear flat, and the cornices of the niches or windows projecting before the fronts of the arches, will become too principal and striking in the composition; as may be seen in the second order of the Farnese at Rome.

These dimensions are general, but for a more accurate detail, the annexed designs* may be consulted, where the proper measures of every part are expressed in figures.

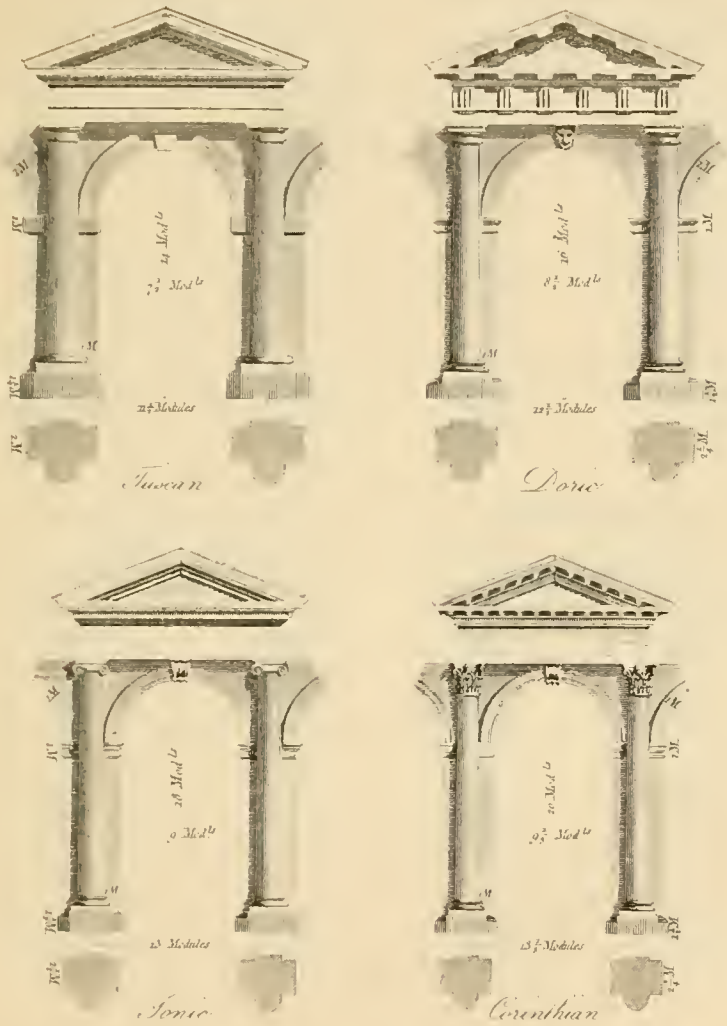
Vignola in all his orders, excepting the Corinthian, makes the height of the arch double its width. His piers, when the columns have no pedestals, are always three modules, and four modules when they have pedestals; his imposts are all of them one module in height, and the archivolts are either one module, or half a module, as they belong to arches with or without pedestals.

Palladio has given designs only of arches with pedestals. Their height is from one and two-thirds to two and a half of their width, and his piers are all of them nearly three modules and three quarters, excepting in the Composite order, where they are four and four-fifths.

Scamozzi's Tuscan arch is, in height, somewhat less than double its width, which height he increases gradually till, in the Corinthian arch with pedestals, it is nearly twice and one half the width. His piers diminish in proportion to the increase of delicacy in the orders. His Tuscan pier in arches without pedestals being four modules and a half, and his Corinthian only three modules and three quarters. In arches with pedestals, his Tuscan pier is four modules and two-thirds, and his Corinthian only four modules. His imposts and archivolts are likewise varied, and their proportions are relative to the width of the

* See Plate of Arches.

Arches without Pedestals.



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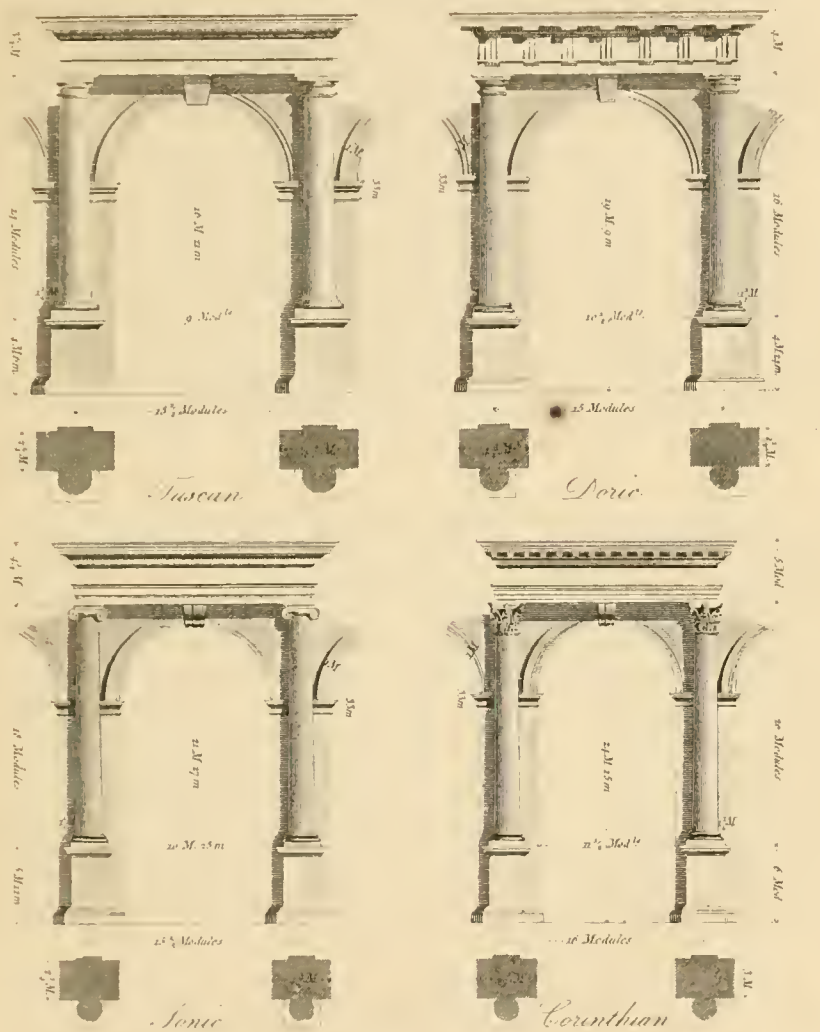
To follow page 214.

Pl. 1.

Arches with Pedestals.



J. Gandon

Porter sculp.

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SIR WILLIAM CHAMBERS' TREATISE.

To follow page 214.

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arches and the height of the piers, so that they are considerably larger in arches with pedestals than in those without.

Vignola's arches, being all of the same proportion, do not characterize the difference of the orders. His piers in arches without pedestals are too narrow, and his archivolts too slight. In his Doric arch without pedestals, the distance between the arch and architrave of the order is too considerable, as it is indeed in several other of his arches; and in his Doric with pedestals, the piers are much too broad. Palladio makes too great a difference between the height of his arches. His Tuscan and Doric are too low, his Corinthian and Composite much too high. His piers bear a greater proportion to the void of the arch, in the delicate orders than in the massive. His archivolts are slender, his imposts clumsy and ill profiled. The apertures of Scamozzi's arches are well proportioned, except in the Corinthian order, where they are, like Palladio's, of an excessive height. His piers bear a proper relation to the arches, as do likewise his imposts and archivolts, excepting in the arches with pedestals, where they are much too predominant in regard to the other parts of his composition, and the members of which they consist are larger than those of the cornice of the order, a fault which Palladio has likewise been guilty of to a very great excess.

At first sight it appears extremely reasonable to augment the size of the imposts and archivolts of arches in proportion to the increase of the aperture, and in cases where no order is employed it ought always to be done; but when the arches are not only adorned with imposts and archivolts, but are likewise surrounded with pedestals, columns and entablatures, it must be very improper to change considerably the proportions of any one of these parts, while all the rest remain unaltered—since the consequence must be a considerable disparity between them, so much the more striking, as they are near each other and of similar natures, both circumstances tending to facilitate a comparison; while a trifling disproportion between the aperture of the arch and its impost or archivolt will seldom be perceived, and never can be very displeasing to the eye.

In the annexed plates* are given designs of arches in all the orders, wherein it has been attempted to avoid the faults with which the above-mentioned masters are charged. In the arches without pedestals, their height is made equal to the length of the column; which height is, in the Tuscan and Doric orders, something less than double the width of the arch, and in the

* See Plates of Arches without and with Pedestals.

Corinthian or Composite something more than double; and in arches with pedestals nearly the same proportion between the height and the width of the aperture is observed.

The difference of width in the arches, supposing the orders to be all of the same height, not being considerable, I have constantly observed the same dimensions as well in the piers as in the imposts and archivolts; which is done to avoid a troublesome and needless detail, the characters of the different orders being sufficiently preserved without it. For though the Corinthian pier contains in width the same number of modules as the Tuscan, yet, as these modules diminish in proportion to the increase of delicacy in the orders, the real size of the one is to that of the other only as seven to ten.

In the Doric order, the distribution of the frieze makes it difficult to proportion the apertures of the arches well, either with or without pedestals; for the intervals of three or four triglyphs are too narrow, and those of four and five are rather too wide. Palladio, to conquer that difficulty, has, at the Carità in Venice,* omitted the usual ornaments of the frieze, and introduced, instead of them, an imitation of those on the frieze of the Sibyl's Temple at Tivoli;† having at the same time made the distance between the axis of the columns only eleven modules and a half, instead of twelve and a half, which was the regular measure. Le Clerc, in his designs of the Doric order, has diminished the breadth of the metopes and triglyphs; and Scamozzi has made his Doric columns seventeen modules high, instead of sixteen, their usual dimension, and raised them on plinths, which last expedient Sangallo has likewise made use of in the lower order of the Farnese at Rome.

In imitation of Sangallo, I have, in the Doric arch without pedestals, raised the columns on plinths, but avoided augmenting their height, as I did not incline to change the established proportions of the order, where there

* Monisterio de' Canonici Lateranensi della Carità. The building has never been finished.—[Ed.]

† This exquisite temple, which is circular, has been selected by Mr. Price in his Essay, as an example of beauty, illustrative of Mr. Burke's doctrine of flowing lines. On this passage of Mr. Price, the noble author of the "Inquiry into the Principles of Beauty in Grecian Architecture" observes, "I have no wish to deny the general beauty of this temple, or the charm of its appearance, especially in the situation in which it is placed, whatever may be the *corrupt taste* of some of its ornamental details." This *ex cathedrâ* remark I should not have deemed it necessary to have noticed, but that the student might be perhaps misled, had I passed it in silence. If he rely on my judgment respecting the taste of the detail of the temple in question he will receive an impression *toto cœlo* different from that conveyed by the quotation. The capital of the temple of the Sibyl at Tivoli is in its singular construction (the leaves being cut into the bell and not *appliquées*, see note, page 108), a remarkable specimen of the genius and taste of the architect who contrived it. It must be allowed that the work is not highly finished like the works of the Greeks, but beauty of form and high finishing are not inseparable in works of taste.—[Ed.]

appeared so little occasion for it. However, if the lowness of the arch should be objected to, it may easily be remedied either by increasing the height of the column, as Palladio has done in his arch with pedestals, or by diminishing the breadth of the metopes and triglyphs, according to Le Clerc's method, or by employing both these artifices together; which last should be preferred, as it renders the change in the proportions of each particular part less considerable.

The same expedients may be used in changing the measures of the Doric arch with pedestals, if they should not please; observing always to divide the alteration proportionably between the pedestal, the column and the frieze of the order; by which means the height of the aperture may be brought to double its width without apparent detriment to any other part; for many things which, in the strictness of theory, appear licentious, are, in reality, of little or no consequence in the execution, because they are not easily perceptible.

The proportions of the Tuscan arch may likewise be changed if required, and the height of the aperture be made nearer to double its width, which, as there are neither modillions nor dentils in the cornice, may be done without changing the proportion of any part of the order.

Should the breadths which I have given to the piers of all the above-mentioned arches, though they seem to me well-proportioned, be thought too considerable, they may be diminished, and in arches without pedestals, be reduced to three modules and three quarters, like those of Palladio, observing, in such case, to reduce the archivolts to twenty-six minutes, instead of the thirty which they have in the annexed designs. The piers of arches with pedestals may likewise be lessened, and instead of four modules and a half, be only four in breadth, which may be done without changing the dimensions of the archivolts; nor need, in either of the cases, the imposts of any of the arches be altered.

When columns are engaged in the piers, their projection depends on that of the impost, of which the most prominent part should be in a line with the axis of the column, at least in the Tuscan and Doric orders; but in the Ionic, Composite, and Corinthian, it may project somewhat beyond the axis, as in the Redentore* at Venice, one of Palladio's best works, because when the columns in these orders are disengaged much above the half of their diameter, it occasions very disagreeable mutilations in the capitals, as may be observed

* This elegant church was decreed and dedicated to the Redeemer of the World by the Venetians, in gratitude for their delivery from the dreadful plague that raged in the city in the year 1576. On the 3rd

in the porch of St. George's,* Bloomsbury, and at the Banqueting-House, Whitehall.

In proportion to the increase of delicacy in the orders, I have increased the thickness of the piers in each, a quarter of a module. Scamozzi's rule is quite opposite to this, for he diminishes his piers in thickness as well as in breadth, in the delicate orders; by which practice the real solidity of the structure is much affected, more particularly as the columns, which may be considered as parts of the piers, or as their abutments, are much weaker in the Composite and Corinthian, than they are in the Tuscan or Doric orders; whereas, according to the method here observed, the solidity of all the piers is nearly the same; a circumstance of far more consequence than any trifling disproportion between the thickness of the pier and the diameter of the column, which can seldom be discovered, and never without a nicer inspection than can take place in observing the general effect of any composition.

With regard to the interior decoration of arcades, the portico may either have a flat ceiling, or be arched in various manners. When the ceiling is flat, there may be on the backs of the piers, pilasters of the same kind and dimensions with the columns on their fronts; facing which pilasters there must be others like them, on the back wall of the portico. Their projection, as well as that of those against the back of the piers, may be from one-sixth to one-quarter of their diameter. These pilasters may support a continued entablature, or one interrupted and running across the portico over every two pilasters, in order to form coffers; or the architrave and frieze only may be continued, while the cornice alone is carried across the portico over the pilasters, as before, and serves to form compartments in the ceiling, as is done in the vestibule of the Massimi Palace† at Rome, and in the great stable of the King's Mews, near Charing Cross.

Where the portico is arched, either with a semi-circular or elliptical vault, the backs of the piers and the inner wall of the portico may be decorated with

of May, 1577, the Doge and Patriarch of Venice laid the first stone of the edifice, on which was the following inscription:—

EX PIO, SOLEMNIQ. VOTO REIP. AD ARCENDA FULGURA DIRÆ PESTIS
REDEMPT. DEO SANCT D. GREG. XIII. PONT. MAX. VENET. DUCE
ALOYSIO MOCENICO, JOAN. TRIVIS. PATRIAR. MDLXXVI.

See "Venetia Citta Nobilissima, e singolare, descritta da M. F. Sansovino," 4to. Venetia, MDCLXIII. page 255.

* See note at page 199.—[Ed.]

† By Baldassare Peruzzi, one of the many architects employed on the church of St. Peter's. Peruzzi was born in 1481, and died at Rome in 1536. He has the honour of lying by the side of the divine Raffaelle d'Urbino, in the Pantheon.—[Ed.]

Various sorts of Arcades taken from different Buildings at Rome and in other parts of Italy.

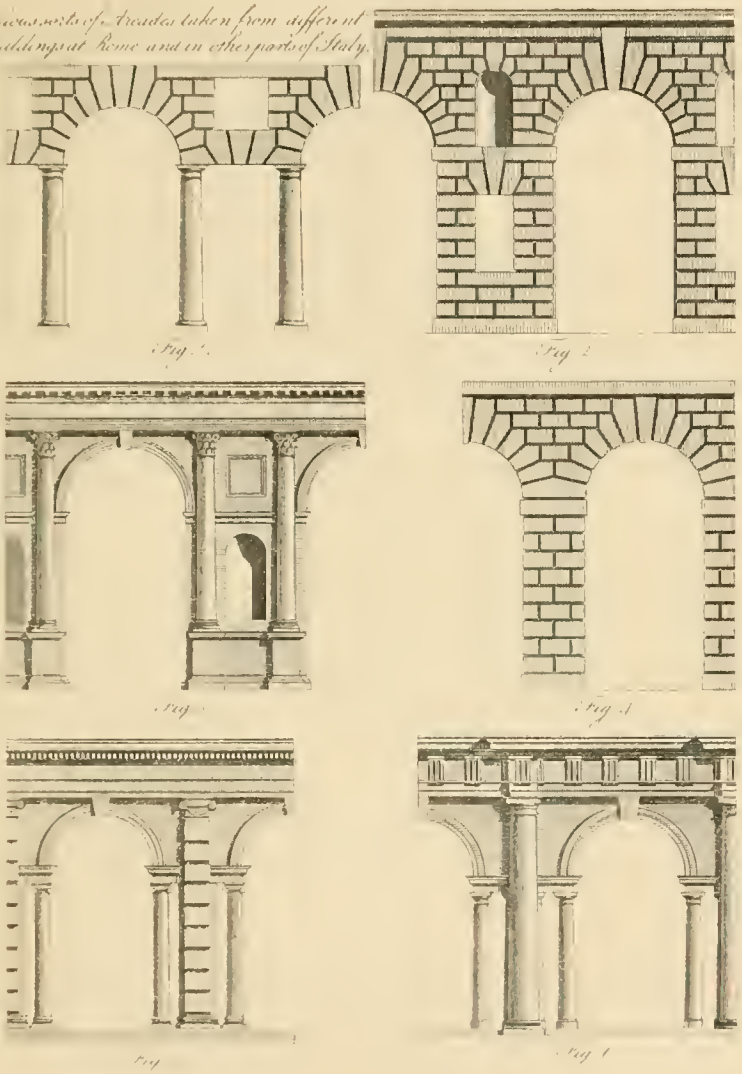

Fig. 1. Fig. 2. Fig. 3. Fig. 4. Fig. 5. Fig. 6.

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pilasters, as is above described, supporting a regular continued entablature, from a little above which the arch should take its spring, that no part of it may be hid by the projection of the cornice. The vault may be enriched with compartments of various regular figures, such as hexagons, octagons, squares, and the like, of which, and their decorations, several examples are given among the designs for ceilings. But when the vault is groined, or composed of flats, circular or domical coves, sustained on pendentives, the pilasters may be as broad as are the columns in front of the piers, but they must rise no higher than the top of the impost, the mouldings of which must finish and serve them instead of a capital; from whence the groins and pendentives are to spring, as also the bands or *arcs doubleaux* which divide the vault.

In the third plate of arches are six different designs of arcades, all of them composed by celebrated masters, and perfect in their kind. Fig. 1, though less so than the rest, is, notwithstanding, the invention of Serlio,* who recommends that manner of arching in cases where columns are already provided, as it frequently happens in places abounding with antiquities, of which the length is not sufficient for the intended purpose. And he observes that where these arches are used, it will be necessary to secure them with strong abutments at each end. The great aperture of this kind of arch may be from four and a half to five diameters of the column in width, and in height double that dimension; the width of the small aperture must never exceed two-thirds of that of the large one, and its height is determined by the height of the columns. To me it seems that this sort of disposition might be considerably improved by adding an architrave cornice or an entablature to the column, by omitting the rustics, and by surrounding the arches with archivolts.

Fig. 2 is of Vignola's invention, and executed by him in the Cortile of the castle at Caprarola.† The arches are, in height, somewhat more than

* Lib. iv. Dell' ornamento Rùstico.

† By Giacomo Barozzi da Vignola. Not any of his other works, beautiful as they are, are deemed by Milizia "paragonàbili al Palazzo di Caprarola, che è senza dubbio l'opera più grande e più bella di sì egrègio Artista." It was built for the Cardinal Alessandro Farnese, in a lonely, mountainous and barren spot on the Viterbo road, about thirty miles from Rome. The building stands on the ridge of a hill surrounded with rocks. The effect on approaching it resembles that of enchantment. In front, to the right and left, are the stables and other offices, out of which the main body of the building rises, in the form of a pentagon on the plan, whose salient angles are flanked by bastions, which give it the appearance of a mixture of civil and military architecture, with an air of infinite grandeur. The details are all in good taste, and exceedingly pleasing. Not less so is the plan of this singular palace. Besides a large loggia and staircase on one of the sides of the polygon, there are four great rooms, to which is a separate access by means of the circular open arcade which circumscribes the central court. Though the building

twice their width; the distance from the arch to the top of the cornice is equal to one-third of the height of the arch. The breadth of the pier is equal to the width of the arch; and the aperture of the window occupies nearly one-third of that breadth. Fig. 3 is an invention of Bramante,* and executed in the Garden of the Belvedere at Rome. The height of the arch is a trifle more than twice its width; the breadth of the pier is equal to the width of the arch; and, being divided into twelve parts, two of them are given to the parts of the pier supporting the archivolts, four to the two columns, two to the intervals between the niche and the columns, and four to the niche. The height of the pedestal is half the diameter of the arch; the columns are ten diameters in height, and the height of the entablature is one-quarter of the height of the columns; the impost and archivolt are, each of them, equal to half a diameter of the column. Fig. 4 is very common in the works of Palladio, and has been often imitated by Inigo Jones. The height of the arch may be about twice its width, and the breadth of the pier should never be less than one, nor more than two-thirds, of the width of the arch. Fig. 5 is a design of Vignola, executed at Monte Dragone, a seat of the Princes Borghese, near Frascati. The height of the arch is something more than twice its width, and the breadth of the pier, including the columns that support the arch, is a trifle less than the width of the arch itself. Fig. 6 is an invention of Palladio,

is not of great magnitude, the apartments are, from their judicious disposition, of considerable number. Some of the views which adorn the interior of the palace are from the pencil of Vignola himself. "Allorchè il famoso Monsignore Barbaro vide questo Palazzo," according to Milizia, "disse che la presenza era maggiòr della fama." A more magnificent villa than that just described certainly does not exist in Europe.—[Ed.]

* Donato Lazzari, usually known by the name of Bramante da Urbino, was a painter and architect. He was born at Castel Durante, some say Fermignano, in the territory of Urbino, in 1444, and died in 1514. Of his works as a painter we know but little, but his talents as an architect, the original plan for St. Peter's, which all the succeeding architects could not, by their many alterations, supersede, sufficiently evinces. His first patron, after his arrival in Rome, was Cardinal Caraffa, for whom he designed and executed the choir in the Convent dei Frati. This brought him under the notice of Alexander VI., for whom he was much employed. Under Julius II. he was engaged as superintendent of his buildings, in accomplishing the junction of the Belvedere with the Vatican, by means of two galleries over a gorge. At Bologna, in 1504, he was employed in fortifying the town during the war of Mirandola. Upon his return to Rome, after this journey, he made the designs for the fabric of St. Peter's, which were carried into execution as high as the entablature and the four great arches for the support of the dome, before his death. Michael Angelo, who admired his designs, conformed in a great measure to the original intention of Bramante, in carrying on the works, but it was much altered by the architects who succeeded him. It was Bramante who invited Raffaelle, his cousin, to Rome, instructed him in architecture, and procured employment for him in the Vatican. In gratitude for his care of him, Raffaelle has left us his portrait in the school of Athens. We have the testimony of Michael Angelo to the talents of Bramante. In writing to his friend Messer Bartolomeo, he says, "Non si può negàre, che Bramante non fosse valente nell' architettura quanto ogni altro, che sia stato dagli antichi in qua," &c.—[Ed.]

and executed by him in the Basilica at Vicenza. The most beautiful proportion for compositions of this kind is, that the aperture of the arch be in height twice its width; that the breadth of the pier do not exceed that of the arch, nor be much less; that the small order be in height two-thirds of the large columns, which height being divided into nine parts, eight of them must be for the height of the column, and the ninth for the height of the architrave cornice, two-fifths of which should be for the architrave, and three for the cornice. The breadth of the archivolt should be equal to the superior diameter of the small columns, and the keystone, at its bottom, must never exceed the same breadth.

NOTE ON ARCADES AND ARCHES.

Besides contributing to decoration, both Impost and Keystone are essential to the full expression of an arch of any magnitude, more especially if grandeur is the character aimed at. The value of them will be best understood by considering the comparatively tame effect occasioned by their being omitted, as is for instance the case with the otherwise noble arch at the top of Constitution-hill—now sadly dwarfed and disfigured by the extravagantly large equestrian statue on its summit. In external design no other than the semicircular arch is admissible—at least not if any of the orders are employed. With ordinary buildings, also interiors, it is different; in the latter the segmental arch may be used, not only without disagreeable effect, but even preferably to the other, according to circumstances. Within private rooms arches may, without impropriety, be left quite plain, because there any dressings to them might cause a look of heaviness. That, however, depends entirely upon circumstances, for which no rules can be laid down.

It is hardly necessary to observe that, upon a curved surface, whether it be concave or convex, arches have unavoidably an unsatisfactory appearance.

A spacious arch within a portico may be made a highly impressive feature, on account of its contrasting most favourably with the comparatively narrow intercolumns in front. In the vastly over-praised portico of St. Martin's Church, on the contrary, there is a most flagrant and offensive solecism, for, although besides being the principal one as regards its position, the central door looks actually lower, more mean and insignificant than the other two, because, strange to say, instead of being loftier than them it looks lower, on account of the arched head springing from a lower level than the tops of its companions.

[W. H. L.]

OF ORDERS ABOVE ORDERS.

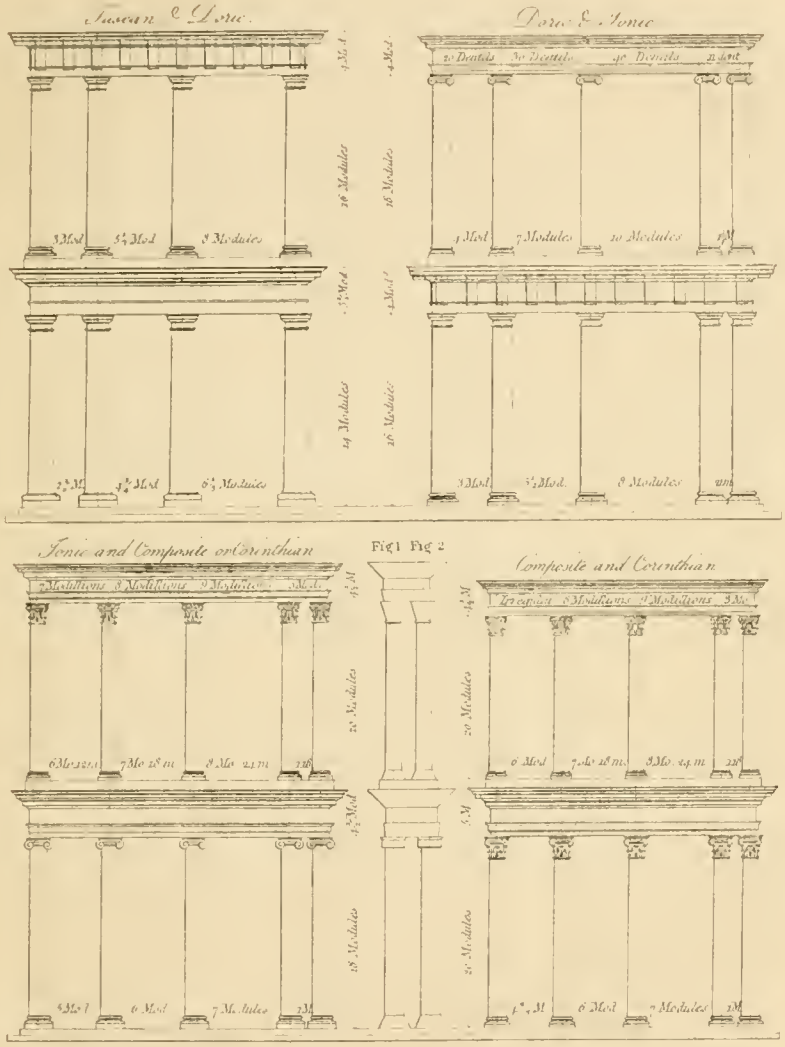
When two or more orders are employed, and placed upon each other in a building, the laws of solidity require that the strongest should be placed lowermost; wherefore the Tuscan is to support the Doric, the Doric the Ionic, the Ionic the Composite or Corinthian, and the Composite the Corinthian only.*

This rule, however, has not always been strictly adhered to; most authors place the Composite above the Corinthian, and we find it so disposed in many modern buildings. There are likewise examples where the same order is repeated; as at the theatre of Statilius Taurus† and the Coliseum, and there are others where an intermediate order is omitted, and the Ionic placed on the Tuscan, or the Corinthian on the Doric; but none of these practices are regular. The first of them is an evident trespass against the rules of solidity, and should never be imitated; the second occasions a tiresome uniformity; and the last cannot be effected without several disagreeable irregularities; for if the diameter of the superior order be in the same proportion to that of the inferior, as if the succession were regular, the upper order will be higher than the lower one; and if the diameter be lessened, in order to diminish the

* Knight, in his Analytical Inquiry into the Principles of Taste, Part ii., chap 2, says, "The appropriation of particular proportions to the columns of the particular orders, is, I believe, of no higher antiquity than the practice of placing one order over another, of which I know of no instance anterior to the theatres of the Romans, the first of which, excepting temporary structures of wood, was that of Pompey. In the arrangement of the different orders in buildings of this kind the plainest was naturally placed lowest, and the most enriched highest; and hence the plainest was made the most massive, and the most ornamented the most light and slender; but as this distinction of proportions arose merely from the relative positions which they held when thus employed together, and not from any inherent principle of propriety, there can be no other reason than that of established custom why it should be observed when they are employed separately and independent of each other." Upon this passage there is a note by its author alluding to the temple at Tegea, said by Pausanias, Arcad. xli., to have been designed by Scopas, in which there was an upper range of columns of the Corinthian order over the lower Ionic range; but Mr. Knight thinks as the temple was built on the site of one burnt in the 96th Olympiad, and that as these works did not proceed with great rapidity in inferior cities it may be likely that the upper range was added under the Roman emperors. It is probable that this note escaped the notice of the author of the Inquiry into Grecian Architecture, who says, page 176, that Mr. Knight has fallen into a mistake; at all events, it was deemed proper to mention the substance of the note in question.—[Ed.]

† See Suetonius in Vitâ Caligul. cap. 18, where the theatre of Statilius Taurus is noticed.—[Ed.]

Columns upon Columns.



Published by the Proprietors of the Building News, 1860

WILLIAM CHAMBERS TREATISE

height, the column will be too slender, the intercolumniation, which at best becomes too wide, will be still more enlarged, and the piers, if there be arches, will be considerably too broad. Besides all which, the characters of the different orders will be much too opposite to be employed in the same aspect, without being connected by some preparatory decoration.

In placing columns above each other, it is always to be observed, that the axis of all the columns must correspond, and be in the same perpendicular line, at least in front; in flank they may or may not be so, as shall be most convenient, though it is certainly more regular, as well as more solid, to place them on a perpendicular line in flank likewise. At the theatre of Marcellus, the axis of the Ionic column is almost a foot within that of the Doric one below it, which, as the columns are engaged, and the wall of the second story is considerably retracted, could not well be avoided, and in cases of a similar nature, where the solidity of the structure is not affected by it, the same method may be taken; observing, however, never to make the retraction greater than it is at the theatre of Marcellus, where the front of the plinth, in the second order, is in a line with the top of the shaft in the first.

But wherever columns are detached, it will always be best to place them exactly over each other, that so the axis of all may form one continued perpendicular line, for then the structure will be solid, which it cannot be when the superior column is placed considerably within the inferior one, as a great part of it can then have no other support than the entablature of the order below it. It is, indeed, true that by so doing, the bases of the upper order will have a false bearing in front, as well as on the sides; but there being no possibility of removing this inconvenience on the sides, it would be a matter of no consequence to remove it in front, where it is scarcely perceptible.

Vitruvius, in the first chapter of his fifth book, says that the columns in a second story should be less than those in a first by one quarter, for the inferior parts, being most loaded, ought to be strongest; and in the seventh chapter of the same book, he repeats the same precept, adding, that if a third order should be placed upon a second, its columns ought likewise to be less by one quarter than those of the second order. So that, according to this rule, the height of the column in the third order, would only be nine-sixteenths of that in the first, and if the columns were placed on pedestals, which, according to him, must be less by one-half in a superior than in an inferior order, the height of the pedestal and column in the second order would be to their height in the first as eleven to sixteen; and the height of the pedestal and column in the third order would be to their height in the first nearly as fifteen to thirty-

two, that is, less by more than one-half. And farther, if three orders of detached columns thus proportioned were placed one above the other, as, for instance, the Doric, Ionic and Corinthian, and the lower intercolumniations were Eustyle, or of two diameters and one third, the second intercolumniations would be Araeostyle, or of four diameters, and the third would be nearly of six diameters and a half: a width of intercolumniation extremely unpleasing to the eye, at any rate unsolid, and, according to Vitruvius's own doctrine, not practicable but where the architraves are made of timber. And if, in like manner, three orders of engaged columns were placed above each other, either alone or on pedestals, and the lower intercolumniation was of a proper width to admit a well-proportioned niche, window, door or arch, it would be exceedingly difficult to decorate the second intercolumniation, and absolutely impossible to decorate the third, which, though considerably wider than the first, would be no more than about half as high.

I shall not trouble the reader with the various opinions and practices of the modern architects with regard to the proportion of orders placed above each other; the curious may consult Blondel's Cours d'Architecture,* where the greatest part of them are enumerated, and their merits nicely weighed, the whole discussion being spun out to the extent of seventy well-filled folio pages. It will be sufficient to observe that Scamozzi's rule† is universally esteemed the best, being simple, natural, and attended with fewer inconveniencies than any other. It is built upon a passage in the fifth book of Vitruvius, and imports that the lower diameter of the superior column should constantly be equal to the upper diameter of the inferior one, as if all the columns were formed of one long tapering tree, cut into several pieces.

According to this rule the Doric column will be to the Tuscan as thirteen and one-third to fourteen, the Ionic to the Doric as fifteen to sixteen, the Composite or Corinthian to the Ionic as sixteen and two-thirds to eighteen; and the Corinthian to the Composite as sixteen and two-thirds to twenty.

In this progression it appears that when the Composite and Corinthian are employed together, the relations between them are more distant than between any of the other orders. But this may be remedied by lessening the

* Quatrième Partie, chap. 4, et seq.—[Ed.]

† "Laonde, noi concludiamo, che sia molto più ragionèvole, e riescano anco molto mèglio, e più grate all'occhio à far esse colonne l'une minori dell'altre quanto porta la loro propria diminuitione, in modo, che la grossezza della parte di sopra delle prime, sia à punto la grossezza delle seconde; e così di mano in mano: la qual cosa si vede osservata nell' Ordine Ionico del Theatro di Marcello, e altri edifici: e questa è ragione, e termine naturale, come se d'un lungo, e solo àlbero si facessero le lunghezze de' loro fusti, l'uno dopò l'altro," &c. See Scamozzi, Parte Seconda, Lib. vi. cap. 11.—[Ed.]

diminution of the inferior column, making its upper diameter six-sevenths, or seven-eighths of the lower one, instead of five-sixths; though, to say the truth, the very best expedient will be, never to use these two orders in the same aspect; for they are so much alike that it differs little from a repetition of the same object.

It may probably be objected that the inferior orders, according to the above-mentioned proportions, will not be sufficiently predominant. But if both the orders are continued throughout the front this is of no consequence; there are many examples where the difference between them is not greater, which yet succeed perfectly well and are generally esteemed. And if the superior order only subsists in the middle, or at the ends, as is often the case, then the parts of the inferior order, over which no superior is placed, are generally finished with a balustrade, levelling with the cills of the windows in the second order; which unites with, and is sufficient to give a proper degree of predominance to, the lower part of the composition.

In England there are few examples of more than two stories of columns in the same aspect; and though in Italy and other parts of Europe we frequently meet with three, and sometimes more, yet it is a practice by no means to be recommended or imitated; for there is no possibility of avoiding many striking inconsistencies, or of preserving the character of each order in the intercolumnal decorations. Palladio has attempted it at the Carità, in Venice; Sangallo, in the Palazzo Farnese at Rome; Ammanati,* in the Cortile of the Pitti, at Florence; but all unsuccessfully. It is even difficult to arrange two orders with any tolerable degree of regularity, for the reasons already offered in the beginning of this chapter, which will remain in force, even when Scamozzi's rule is observed, though the relations between the heights of the different orders are then less distant than by any other method.

In the first plate of orders above each other, I have given designs of double colonnades in all the orders, which are so disposed that the modillions, mutules, triglyphs, and other ornaments of the entablature fall regularly over the axis of

* Bartolomeo Ammanati, a Florentine architect and sculptor, was born in 1511, died in 1586. His first master was Baccio Bandinelli, but he afterwards studied under Sansovino at Venice. The celebrated bridge of the Holy Trinity at Florence, of which he was architect, has spread his reputation throughout the world. Ammanati wrote a work entitled "La Città," never published, and for a length of time supposed to have been lost, containing designs for all the public edifices requisite in a city. This is now among the collection of designs in the Gallery at Florence. His wife, Laura Battiferri, was renowned for her literary acquirements, for which she was chosen one of the Members of the Academy of Intronati at Siena. A description of the bridge above mentioned, under the title "Della vera Curva degli archi del Ponte a S. Trinita di Firenze," by Pietro Ferroni, 4to. Verona, 1808—contains much interesting matter, as well as plates of the structure.—[Ed.]

the columns, except in the Composite and Corinthian combination, where in the Eustyle interval, the modillions of the second cornice do not exactly answer. But the distance of the object from the spectator's eye makes this irregularity less important, more especially as a modillion will fall exactly over the axis of every third column. Nevertheless, if a scrupulous accuracy should be required, the entablature may be augmented and made full five modules high, by which means the distribution will be perfectly regular.

Among the intercolumniations exhibited in the above-mentioned plate, there are some in the second orders extremely wide, such as the Ionic interval over the Doric Aræostyle; the Composite and Corinthian intervals over the Ionic and Composite Aræostyles; which, having a weak, meagre appearance, and not being sufficiently solid, excepting in small buildings, are seldom to be suffered, and should seldom be introduced. The most eligible are the Eustyle and Diastyle for the first order, which produce nearly the Diastyle and the Aræostyle in the second.

Many architects, among which number are Palladio and Scamozzi, place the second order of columns on a pedestal. In compositions consisting of two stories of arcades this cannot be avoided; but in colonnades it may and ought: for the addition of the pedestal renders the upper ordonnance too predominant, and the projection of the pedestal's base is both disagreeable to the eye, and much too heavy a load on the inferior entablature. Palladio, in the Barbarano Palace at Vicenza, has placed the columns of the second story on a plinth only, and this disposition is best: the height of the plinth being regulated by the point of view, and made sufficient to expose to sight the whole base of the column. In this case, the balustrade must be without either pedestals or half balusters to support its extremities, because these would contract and alter the form of the column; its rail or cap must be fixed to the shafts of the columns, and its base made to level with their bases; the upper torus and fillet of the columns being continued in the interval, and serving as mouldings to the base of the balustrade. The rail and balusters must not be clumsy; wherefore it is best to use double-bellied balusters, as Palladio has done in most of his buildings; and to give to the rail very little projection; that so, it may not advance too far upon the surface of the column, and seem to cut into it. In large buildings, the centre of the baluster may be in a line with the axis of the column; but in small ones, it must be within it, for the reason just mentioned.

The height of the balustrade is regulated, in a great measure, by its use; and cannot well be lower than three feet, nor should it be higher than three

Published by the Proprietors of the Building News 1860

and a half or four feet. Nevertheless, it must necessarily bear some proportion to the rest of the architecture, and have nearly the same relation to the lower order, or whatever it immediately stands upon, as when a balustrade is placed thereon, chiefly for ornament. Wherefore, if the parts are large, the height of the balustrade must be augmented; and if they are small, it must be diminished, as is done in the Casino at Wilton, where it is only two feet four inches high, which was the largest dimension that could be given to it in so small a building. But that it might, notwithstanding its lowness, answer the intended purpose, the pavement of the portico is six inches lower than the bases of the columns, and on a level with the bottom of the plat-band that finishes the basement.

The best, and indeed the only good disposition, for two stories of arcades, is to raise the inferior order on a plinth, and the superior one on a pedestal, as Sangallo has done at the Palazzo Farnese; making both the ordonnances of an equal height, as Palladio has done at the Basilica of Vicenza. In the second plate of orders above each other, there are designs of arches upon arches for each order, which are perfectly regular and well proportioned.

Scamozzi, in the thirteenth chapter of his sixth book, says, that the arches in the second story should not only be lower, but also narrower, than those in the first; supporting his doctrine by several specious arguments, and by the practice, as he says, of the ancient architects in various buildings mentioned by him. In most of these, however, the superior arches are so far from being narrower, that they are either equal to, or wider than the inferior ones. In fact, his doctrine in this particular is very erroneous, entirely contrary to reason, and productive of several bad consequences; for if the upper arches be narrower than the lower ones, the piers must of course be broader, which is opposite to all rules of solidity whatever, and exceedingly ugly to the sight. The extraordinary breadth of the pier on each side of the columns, in the superior order, is likewise a great deformity; even when the arches are of equal widths, it is much too considerable. Palladio has, at the Carità in Venice, and at the Palazzo Thiene in Vicenza, made his upper arches wider than the lower ones, and I have not hesitated to follow his example: as by that means the weight of the solid in the superior order is somewhat diminished, the fronts of the upper piers bear a good proportion to their respective columns, and likewise to the rest of the composition.

In a second story of arcades, there is no avoiding pedestals. Palladio has indeed omitted them at the Carità; but his arches there are very ill proportioned. The extraordinary bulk and projection of these pedestals are, as

before observed, a considerable defect; to remedy which, in some measure, they have been frequently employed without bases, as in the theatre of Marcellus, on the outside of the Palazzo Thiene, and that of the Chiericato in Vicenza. This, however, helps the matter but little; and it will be best to make them always with bases of a moderate projection, observing, at the same time, to reduce the projection of the bases of the columns to ten minutes only, that the die may be no larger than is absolutely necessary; and in this case particular care must be taken not to break the entablature over each column of the inferior order, because the false bearing of the pedestal, in the second order, will by so doing be rendered far more striking, and in reality more defective, having then no other support than the projecting mouldings of the inferior cornice. There is no occasion to raise the pedestals of the second order on a plinth; for as they come very forward on the cornice of the first order, and as the point of view must necessarily be distant, a very small part only of their bases will be hid from the eye.

The balustrade must be level with the pedestals supporting the columns; its rail or cornice, and base, must be of equal dimensions and of the same profiles with theirs. It should be contained in the arch, and set as far back as possible, that the form of the arch may appear distinct, and uninterrupted from top to bottom; for which reason, likewise, the cornice of the pedestals must not return, nor profile round the piers, which are to be continued in straight perpendicular lines from the imposts to the bases of the pedestals. The back of the rail may either be made plain, or be sunk into a panel, in form of an open surbase, for so it will be most convenient to lean upon, and it should be in a line with, or somewhat recessed within, the backs of the piers. The back part of the base of the balustrade may be adorned with the same mouldings as the bases of the piers, provided they have not much projection; but if that should be considerable, it will be best to use only a plinth, crowned with the two upper mouldings, that so the approach may remain more free.

In the Doric arch above the Tuscan, I have reduced the entablature to three modules, twenty-two minutes; which was necessary in order to have the arch well proportioned, and, as its bearing is very considerable, this license seems the more excusable. The parts of the entablature have the same proportion to each other as usual; the only difference being, that instead of determining their measures by the module of the column, they must be determined by another module, made equal to one-quarter of the height of the entablature. The pedestals and the balustrade are in this, as in the other

arches, equal to the height of the entablature, which was done to preserve the same general rule throughout; but as the entablature here bears a somewhat larger proportion to the column than in the other orders, the height of the balustrade is perhaps a trifle too considerable, and may therefore, if required, be reduced to two-ninths of the column, as in the Ionic order; and what is thus deducted from the height of the entablature may be added to the height of the column, which by that means will acquire a more elegant proportion.

I have reduced the Ionic, Composite and Corinthian entablatures, in the second orders, to two-ninths of the height of their respective columns; and having allowed to each dentil with its interval a breadth of nine minutes of the regular module of the column, the dentils and modillions answer exactly to almost all the intercolumniations. In the design of arches supported by columns, the small order in the second story is a trifle lower than usual, which cannot be avoided; for, if it be made two-thirds of the large column, there will not be room above it for the circular part of the arch with its archivolt.

OF BASEMENTS AND ATTICS.

Instead of employing several orders one above the other in a composition, the ground floor is sometimes made in the form of a continued base, called a basement, on which the order that decorates the principal story is placed. The proportion of these basements is not fixed; it depends on various circumstances, but chiefly on the nature of the apartments composing the ground floor.

In Italy, where their summer habitations are very frequently on that floor, the basements are sometimes very high. At the palace of the Porti in Vicenza, the height is equal to that of the order placed thereupon; and at the Thiene in the same city, its height exceeds two-thirds of that of the order, although it be almost of a sufficient elevation to contain two stories; but at the Villa Capra, and at the Loco Arsieri, both near Vicenza, the basement is only half the height of the order; because, in both these, the ground floor consists of nothing but offices.

It will be superfluous to cite more examples of the diversity of proportions observed by architects in this part of a building; as the four above mentioned, all of them estimable works of the great Palladio, will sufficiently authorize any variations that it may be necessary to make. It will not, however, on any occasion, be advisable to make the basement higher than the order it is to support; for the order being the richest object of the composition, and indicating the principal part in the fabric, ought to be predominant. Besides, when the grand apartment is raised too high, as is the case at Caserta, where the ascent exceeds a hundred steps, it loses much of its importance by the approach to it being rendered tedious, tiresome and difficult. Neither should a basement be lower than half the height of the order if it is to contain apartments, and consequently have windows and entrances into it; for whenever that is the case the rooms will be low, the windows and doors very ill formed, or not proportionate to the rest of the composition, as is observable at Holkham;* but if the only use of the basement be to raise the ground floor, it need not exceed three, four or, at the most, five or six feet in height, and be in the form of a continued pedestal.

* By William Kent.—[Ed.]

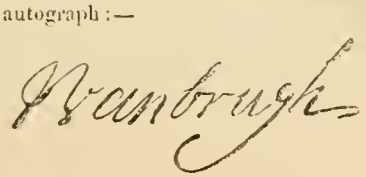
The usual manner of decorating basements is with rustics of different kinds. The best, in buildings where neatness and finishing is aimed at, are such as have a smooth surface. Their height, including the joint, should never be less than one module of the order placed upon the basement, nor much more; and their figure may be from a triple square to a sesquialtera. The joints between them may either be square or chamfered; the square ones should not be wider than one-eighth of the height of the rustic, nor narrower than one-tenth, and their depth must be somewhat less, or at most equal to their width. Of those that have chamfered joints, the chamfer must form a rectangle, and the width of the whole joint may be from one-fourth to near one-third of the height of the flat surface of the rustic. In France we frequently see only the horizontal joints of rustics marked, the vertical ones being entirely omitted; and in Sir John Vanbrugh's works,* the like is also very common;

* Sir John Vanbrugh, eminent for his talents as a dramatic poet, as well as an architect, died in 1726. He was for some time Clarencieux King of Arms, to which appointment, when he succeeded, Swift's pun was that he might *now build houses*. He was knighted at Greenwich, September 9, 1714, appointed Comptroller of the Royal Works, January 6, 1715, and Surveyor of the Works at Greenwich, August 17 1716.

The bespattering of flippant wit with which he was loaded by Walpole and others may be properly contrasted to the opinion of Sir Joshua Reynolds, who says, "In the buildings of Vanbrugh, who was a poet as well as an architect, there is a greater display of imagination than we shall find, perhaps, in any other; and this is the ground of the effect we feel in many of his works, notwithstanding the faults with which many of them are charged. For this purpose Vanbrugh appears to have had recourse to some principles of the Gothic architecture, which, though not so ancient as the Grecian, is more so to our imagination, with which the artist is more concerned than with absolute truth. To speak of Vanbrugh in the language of a painter, he had originality of invention; he understood light and shadow, and had great skill in composition. To support his principal object, he produced his second and third groupes or masses." Again he says, "This is a tribute which a painter owes to an architect, who composed like a painter, and was defrauded of the due reward of his merit by the wits of his time, who did not understand the principles of composition in poetry better than he, and who knew little or nothing of what he understood perfectly, the general ruling principles of architecture and painting. Vanbrugh's fate was that of the great Perrault. Both were the objects of the petulant sarcasms of factious men of letters, and both have left some of the fairest monuments which, to this day, decorate their several countries; the façade of the Louvre; Blenheim and Castle Howard."—Discourse xiii.

Walpole, who was content to live in a barbarous den at Strawberry Hill, says of this truly great architect, "He seems to have hollowed quarries rather than to have built houses." This author also attributes St. John's Church, Westminster, to Vanbrugh, in his notice of him, though at another place he assigns it to Archer.

The subjoined is Vanbrugh's autograph:—



[Ed.]

but it has in general a bad effect, and strikes as if the building were composed of boards rather than of stone. Palladio's method seems far preferable, who, in imitation of the ancients, always marked both the vertical and horizontal joints, and whenever the former of these are regularly and artfully disposed, the rustic work has a very beautiful appearance. I have in the course of the work given various designs of rustic basements,* distributed in different manners, all which are collected from buildings of note.

The basement, when high, is sometimes finished with a cornice, as in the second figure of the third plate of arches, and as in the Strand front of Somerset Place;† but the usual method is only to crown it with a plat-band, as in the fourth figure of the same plate, and as in the river front and square of the same building, the height of which should not exceed the height of a rustic with its joint, nor ever be lower than a rustic, exclusive of the joint. The zoccolo or plinth, at the foot of the basement, must at least be of the same height with the plat-band; in general it should be somewhat higher, and whenever there are arches in the basement, the plat-band which supplies the place of the impost must be of the same height as one of the rustics, exclusive of its joint; and where a cornice is introduced to finish the basement, a regular moulded base to the same must also be introduced. To the height of the cornice may be given one-seventeenth or eighteenth part of the whole basement, and to that of the base about twice as much, divided into six parts, of which the lower five-sixths should form the plinth, and the upper sixth part be composed of mouldings.

It is sometimes usual, instead of a second order, to crown the first with an attic, as Palladio has done at the Porto and Valmarana palaces in Vicenza, and Inigo Jones at Greenwich Hospital. These attics should never exceed in height one-third of the height of the order on which they are placed, nor ever be less than one-quarter. Their figure is that of a pedestal. The base, dye and cornice, of which they are composed, may bear the same proportions to each other as those of pedestals do, and the base and cornice may be composed of the same mouldings as those of pedestals are. Sometimes these attics are continued throughout without any breaks; at other times parts project, and form pilasters over each column or pilaster of the order. The breadth of these pilasters is seldom made narrower than the upper diameter of the column or pilaster under them, nor ever broader. Their projection may be equal to one-quarter of their breadth, or somewhat less, and their fronts are sometimes

* See Plate 3 of Windows, and Plate 3 of Arches.

† By Sir William Chambers himself.—[Ed.]

adorned with panels sunk in and surrounded with mouldings, as they were on the front of Powis House; but this, on most occasions, as it looks too like joiner's work, should be avoided, as well as the capitals with which they are often adorned, particularly in France, because they then approach too near the figure of regular pilasters of the orders, and being much broader than these in proportion to their height, always carry with them the idea of a stunted, clumsy, ill-proportioned composition.

NOTE ON RUSTICATION.

The Italians made much of that kind of masonry, which, though it is termed *Rustication*, so far from being necessarily *rude*, is capable of expressing no small degree of ornateness and carefully-finished execution. There are, in fact, several varieties of it decidedly different in character; from that of bold, unpolished energy, nearly up to that of elaborate embellishment. The first is in its place in prisons, the last not out of its place in the façade of a palace. Rustication, however treated, prevents baldness and insipidity, inasmuch as, at all events, it produces richness of surface, and what in architectural language is called *color*.

To mention here briefly the several modes of rustication, there are, besides the coarsely rude and rough, or what may be called the primitive mode, those in which the face of the stones is either *vermiculated* or *frosted* (*i.e.* tooled to produce a crispy surface); or else made quite smooth. Of either vermiculated or frosted rusties varieties may be obtained by giving a smooth border to each stone. After these, there is what may be called a fifth order of rustication, in which the stones are *facetted*. Another legitimate source of variety is, that the courses of masonry may be alternately wide and narrow. Moreover and besides all which, two if not more of these several modes may be employed conjunctively, yet how far successfully or not, must depend entirely upon the taste of the designer; for could architecture be reduced to mere matter of method and rule, it would no longer be art. Certain it is that almost innumerable combinations may be produced; and that what is called rustication might be rendered a most abundant source of mural embellishment externally.

With respect to columns, the rustic blocks upon them ought to be few, and if square in plan, ought not to exceed the diameter of the shaft, because they define themselves distinctly without projecting at all beyond the diameter of the shaft, and wherefore, it may be asked, should not occasionally the entire shaft be rusticated—that is, be left merely rough-dressed, or else roughened afterwards by "tooling?" Very much more might be said on the subject of "Rustication" than space here permits; where all that can be added is, that an interesting paper on it, by Mr. H. P. Horner, may be found in the first volume of the "Proceedings of the Liverpool Architectural Society."—[W. H. L.]

OF PEDIMENTS.

A PEDIMENT consists of a horizontal cornice, supporting a triangular or curvilineal space, either plain or adorned, called the Tympanum or Tympan, which is covered either with two portions of straight inclined cornice or with one curvilineal cornice following the direction of its upper outline. At each end of these cornices and on their summit are placed little plinths or pedestals called acroteria or acroters, serving to support the statues, vases, or other ornaments which are used to enrich and to terminate the pediment gracefully.

Pediments owe their origin, most probably, to the inclined roofs of the primitive huts. Among the Romans they were used only as coverings to their sacred buildings, till Cæsar obtained leave to cover his house with a pointed roof after the manner of temples.* In the remains of antiquity we meet with two kinds of them, viz., triangular and circular. The former of these are promiscuously applied to cover small or large bodies, but the latter, being of a heavier figure, are never applied but as coverings to doors, niches, windows or gates, where the smallness of their dimensions compensates for the clumsiness of their form.

As a pediment represents the roof, it should never be employed but to terminate and finish the whole composition; yet, in the churches of Rome and of Paris, we frequently see one used to finish the first order of a porch, another to finish the second order, and sometimes even a third or fourth above these; but this, however, is a practice which should not be imitated. Licinius, the mathematician, anciently reprehended Apaturius, the painter, merely for representing an absurdity of this kind in a picture,† for who, said he, ever saw houses and columns built upon the roofs and upon the tilings of other

* "At *Fastigium*, quo Cæsaris domus ornata est, cùm illi aræ, templa, pulvinaria, decernerentur, ut Deo, fastigii tantùm ornamentum fuit, et *fastigium* dictum est, quod erat quodammodo *fastigii fastigium*. Cic. *in Philipp. Quem is majorem honorem consecutus erat, quàm ut haberet, pulvinar, simulacrum*, fastigium, *flaminem*. Nempe, quemadmodum fastigiis templorum quædam addebantur ornamenta, quibus privatorum ædificiorum culmina carebant, ut statuæ victoriæ, et alia Deorum simulacra: sic cùm multa Cæsari decreta essent, ut Deo, ejus quoque ædium fastigium eodem modo ornavêrunt, quo solebant ornari Deorum templa." —Hoffmanni Lexicon. *Fastigium.* See also Salmasii Plin. Exer. page 853. Traj. ad Rhen. 1689.—[Ed.]

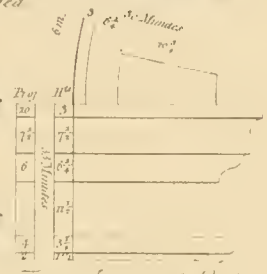
† "At Tralles, a town of Lydia, when Apaturius, of Alabanda, had painted a scene exceedingly well, for the little theatre which they call Ἐκκλησιαστήριον, having, instead of columns, substituted statues and centaurs to support the epistylium, the circular roof of the dome, and angles of the pediments, and having

Pediments and Imposts.

Figures of Pediments to be avoided

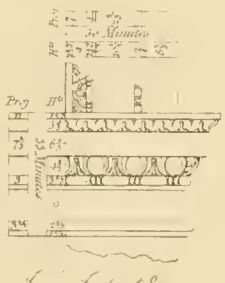
Regular Pediments

Tuscan Impost

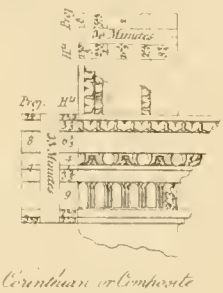


Tuscan Impost & Architrave

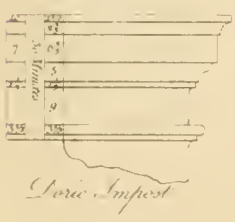
Doric Impost &c



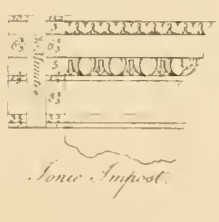
Ionic Impost &c



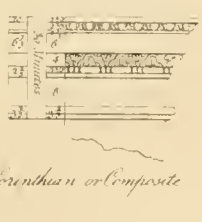
Corinthian or Composite



Doric Impost



Ionic Impost



Corinthian or Composite

Published by the Proprietors of the Building News, 1860

houses? Besides, the inclined top of a pediment is, in appearance, at least, a very unstable base for a range of columns or other heavy bodies.

Nor is it more reasonable to place two or three pediments one within another, as on one of the pavilions in the court of the old Louvre at Paris, at St. Mary's in Campitelli,* and at the church of the Great Gesù† at Rome, since the same building can certainly want but one roof to cover it.

On circular bodies pediments should never be applied, as at the church of St. Thomas in the Louvre, at Paris; that kind of roof being of a very improper construction for covering circles, and far from pleasing to the eye, as in such cases they appear, in almost every view, contorted and irregular.

Some writers there are who object to pediments in interior decorations, because, say they, where the whole is covered and enclosed, there can be no occasion for coverings to shelter each particular part. In this, however, they seem to carry their reasoning rather too far; a step further would lead them into the same road with Father Laugier, who, having sagaciously found out that the first buildings consisted of nothing but four trunks of trees and a covering, considers almost every part of a building, excepting the column, the entablature, and the pediment, as licentious or faulty; and in consequence thereof, very cavalierly banishes at once all pedestals, pilasters, niches, arcades, attics, domes, &c., &c. It is only by special favour that he condescends to tolerate doors or windows, or even walls.

ornamented the cornice with lions' heads, all of which are appropriate to the roofing and eaves of edifices—he painted over all these in the episcenium a repetition of the domes, porticoes, half-pediments, and other parts of buildings. Upon the exhibition of this scene, which pleased much on account of its richness, all were ready to applaud, when Licinius, the mathematician, advanced and said, 'The Alabandines are sufficiently informed in civil matters, but are without judgment on subjects of less moment; for the statues in their Gymnasium are all in the attitude of pleading causes, whilst those in the Forum are holding the discus, or in the attitude of running, or playing with balls—so that the impropriety of the attitudes of the figures in such places disgraces the city. Let us, therefore, be careful by our treatment of the scene of Apaturius, to escape the appellation of Alabandines, or even Abderites; for who among you would place columns or pediments on the tiles which cover the roof of your houses? These things stand on the floors, not on the tiles. If then we approve of representations in painting which cannot exist, we of this city shall be like those who, for a similar error, are deemed illiterate.' Apaturius dared not reply, but took down and altered the scene so as to make it consistent with the truth, and then it was approved. Oh, that the gods would restore Licinius to life!" says Vitruvius, "that he might correct this folly and the fashionable inconsistency in our stucco work."—Vitruvius, Book vii., c. 5.—[Ed.]

* At Rome. Built by Carlo Rainaldi, born at Rome 1611, died 1641. This architect endeavoured to calm the fears which were excited through the *settlement* of the campanile erected by Bernini at St, Peter's, which was, nevertheless, pulled down. Rainaldi gave four designs and models for decorating the piazza in front of St. Peter's. The chief works of this architect are at Rome.—[Ed.]

† This truly magnificent and beautiful church, belonging to the order of the Jesuits, was erected by Cardinal Farnese, on the designs of Vignola, in 1575.—[Ed.]

There are many favorers of this writer's system, who, like him, concentrate all perfection in propriety. It were indeed to be wished that some invariable standard could be discovered whereby to decide the merit of every production of the arts, but certainly Father Laugier has not hit the mark. Beauty and fitness are qualities that have very little connexion with each other; in architecture they are sometimes incompatible, as may easily be demonstrated from some of the Father's own singular compositions, with a description of which he has enriched his book. And there are many things in that art which, though beautiful in the highest degree, yet carry with them, in their application, an evident absurdity; one instance whereof is the Corinthian capital, a form composed of a slight basket, surrounded with leaves and flowers. Can anything be more unfit to support a heavy load of entablature, and such other weights as are usually placed upon it? Yet this has been approved and admired some thousand years, and will probably still continue to be approved and admired for ages to come.

Let it not be imagined, however, that it is by any means intended entirely to lay aside a regard to propriety; on all occasions it must be kept in view. In things designed for use, it is the primary consideration, and should on no account whatever be trespassed upon; but in objects merely ornamental, which are calculated to captivate the senses rather than to satisfy the understanding, it seems unreasonable to sacrifice other qualities more efficacious to fitness alone.

The rigid ancient artists introduced but few pediments into their buildings usually contenting themselves with a single one, to distinguish and adorn the centre or principal part of the structure; but in the more licentious times of antiquity, as well as in modern practice, and particularly among the Italians, such has been the rage after pediments, that their buildings frequently consist of almost nothing else. At Rome the fronts of most of their churches are covered with them, as are likewise many of their palaces and private houses, where they are seen of all sizes and figures; for besides the triangular and round, they have some composed of both these forms, some of an undulated figure, some semi-hexagonal, some with the inclined cornice and tympan open in the middle, to receive a vase, a bust, a niche with a statue, or a tablet for an inscription, and others where the aperture is left void, and the two ends of the inclined cornice are finished with a couple of volutes or fleurons. There is likewise a sort of pediment composed of two half-pediments, which are not joined together to form a whole one, but reversed, the summits being turned outwards. Of this kind there is one under the porticoes of the Gallery of

Florence,* with a bust wedged in between the two sections. England is far from being free of these extravagances; the buildings of London exhibit many examples of each kind, which, not to offend, I shall forbear to point out.

The beam being a necessary part in the construction of a roof, it is an impropriety to intermit or retrench the horizontal entablature of a pediment, by which it is represented, either to make room for a niche, as at St. John's, Westminster,† or for an arch, as in the cathedral church of St. Paul's, or for a window, as is customary in most of the new buildings in this city, where a semicircular window is generally introduced between the inclined cornices of the pediment and the aperture of the door, in order to gain light for the hall or passage; and this license is so much the more reprehensible, as it is extremely ugly, the two parts of the inclined cornice thus disunited, as it were untied and unsupported, always striking the spectator with the idea of a couple of levers applied to overturn the columns on each side. The making several breaks in the horizontal entablature or cornice of a pediment, as at the King's Mews‡ near Charing Cross, and on the pediments in the flanks of St. Paul's, is an impropriety of a similar nature, and equally unpleasing to the eye.

Vitruvius observes that the Greeks never employed either modillions or dentils in the horizontal cornices of their pediments, both of them representing parts in the construction of a roof which cannot appear in that view. This their practice is observable in the temple of Minerva at Athens, and in some other buildings yet standing in Greece. There is an ancient Roman instance of it in the temple of Scisi, mentioned by Palladio, and a modern one in the front of the Feuillans, near the Tuileries, at Paris, built by one of the Mansards.§

* By Giorgio Vasari, the author of 'Lives of the Painters'.—[Ed.]

† Built by Mr. Archer, the groom porter. He built Heythrop, St. Philip's Church at Birmingham, Cliefden House, and a house at Rochampton for Mr. Cary, anno 1710; "But," says Walpole, "the *chef-d'œuvre* of his absurdity was the church of St. John, with four belfries, in Westminster." Archer, judging from his works, seemed to think that the only use of a pediment was to break its continuity, and cut off its apex.—[Ed.]

‡ The architect is generally understood to have been Lord Burlington, though Kent has the credit of it.—[Ed.]

§ François Mansard was the architect of the church *Des Feuillans* in the *Rue St. Honoré*. He was born in 1598, died in 1666. Mansard was the first contriver of the kerb roof, which is sometimes called a Mansard Roof. After having made his designs for the Louvre, and submitted them to the inspection of Colbert, that minister was so much satisfied with them that he wished Mansard to bind himself to refrain from making any alterations in them. To this the architect objected, and refused to engage in the execution of the work under such conditions, being determined, as he said, to preserve the privilege of doing better than he had promised. His chief works, besides that above mentioned, are, the Church of *Les Filles Ste. Marie*, Rue St. Antoine, Gate of the Minims, a part of the Hôtel de Conti, and the Hôtels Jars, Toulouse, and Bouillon. His nephew, Jules Hardouin, a son of Mansard's sister, took his name on coming into his uncle's property, and was the architect of the enormous palace at Versailles. Born in 1647, and died 1708.—[Ed.]

All this is no doubt extremely proper, but at the same time it is as surely extremely ugly. The disparity of figure and enrichment between the horizontal and inclined cornices are such defects as cannot be compensated by any degree of propriety whatever, and therefore to me it appears best, in imitation of the greatest Roman and modern architects, always to make the two cornices of the same profile, thus committing a trifling impropriety to avoid a very considerable deformity.

In regular architecture no other form of pediments can be admitted besides the triangular and round; both of them are beautiful, and when a considerable number of pediments are introduced, as when a range of windows are adorned with them, these two figures may alternately be employed, as they are in the niches of the Pantheon at Rome, and in those of the Temple of Diana at Nismes.

It is to be observed that the two uppermost mouldings of the cornice are always omitted in the horizontal one of a pediment, that part of the profile being directed upwards to finish the inclined cornices. This difference of direction increases the height of the cyma very considerably, and makes it far too large for the other parts of the entablature, to obviate which some architects have made a break in the cyma and fillet, as represented in the fourth figure, plate of pediments; but this being productive of a considerable deformity, it will always be better whenever the whole object is covered with a pediment to make the profile of the cyma lower than usual, by which means it may, notwithstanding the increase occasioned by the difference of its direction, be made of a size suitable to the rest of the cornice. But if the inclined cornices of the pediment be on each side, joined to horizontal ones, as is the case when the middle pavilion or other projecting parts are flanked with buildings, the only good method of lessening the above-mentioned deformity is to give very little projection to the cyma, by which means the increase in its height may be rendered very trifling.

The modillions, mutules, dentils, and other ornaments of the inclined cornices, must always answer perpendicularly over those of the horizontal cornice, and their sides be always perpendicular to the horizon.

The ancients judiciously avoided the introduction of different sized pediments in the same composition. Among the chaste remains of antiquity I do not recollect any examples, even of two different sizes in the same aspect. Neither do we find that they ever adorned their niches, doors, or windows with pediments when the whole front, or any considerable part thereof, was covered with one, justly judging that the immense disparity between the principal pediment and those that should cover the parts could not but produce a

disagreeable opposition in the same manner as a pigmy and a giant, exposed to view at the same time, are both made ridiculous by a comparison.

These cautious proceedings of the ancient artists are good lessons to the moderns, which they would do well to have in memory in all sorts of compositions; for wherever there is a considerable difference of dimension in objects of the same figure, both will equally suffer by it: the largest will appear insupportably heavy, the smallest ridiculously trifling; and wherever the difference of dimension is inconsiderable, it will always strike the beholder as the effect of inaccuracy in the workmen, or of inattention in the contriver, as may be verified by inspection of the arches in the basement story of the Horse Guards* towards St. James's Park.

The proportion of pediments depends upon their size, for the same proportions will not succeed in all cases. When the base of the pediment is short, its height must be increased, and when long it must be diminished; for if a small pediment be made low, the inclined cornice, which is always of the same height, whatever may be the dimension of the pediment, will leave little or no space for the tympan; consequently little or no plain repose between the horizontal and inclined cornices. And if a large pediment be made high, it will have too lofty a tympan, and the whole composition will appear straggling, and too heavy for that which is to support it. The best proportion for the height is from one-fifth to one-quarter of the base, according to the extent of the pediment, and the character of the body it serves to cover.

The face of the tympan is always placed on a line perpendicular with the frieze; and, when large, may be adorned with sculpture representing the arms or cipher of the owner, trophies of various kinds, suited to the nature of the structure; or bas-reliefs, either representing allegorical or historical subjects; but, when small, it is much better left plain.

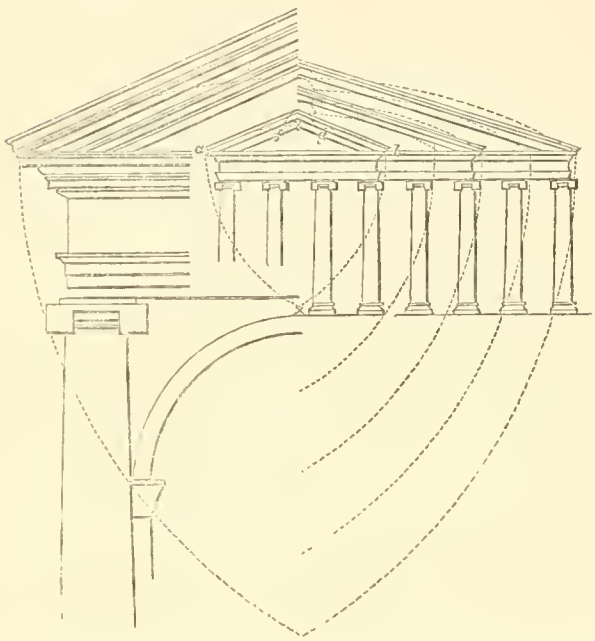
Vitruvius determines the height of the acroters by the height of the tympan, and Scamozzi,† by the projection of the cornice, giving to the dye as much height as the cornice has projection; but neither of these methods are well founded; for, when the building is terminated by a balustrade, the pedestals of the balustrade serve for the side acroters, and that at the summit must be suited to them. But when there is no balustrade, the acroters must always be of a sufficient height, whatever that height may be, to expose to

* By William Kent, born 1685, died 1748. His patron, Lord Burlington, left no means unused to raise the reputation of this architect. His friendship and munificence towards Kent was such that he lodged him in his house whilst living, and in his family vault at Chiswick when dead. Kent's best work is Holkham in Norfolk.

† See Scamozzi, Parte Seconda, Lib. Sesto. c. 8.—[Ed.]

view the whole statue or vase, or other ornaments placed upon them, from the proper point of sight for the building.*

* In a *brochure* of great merit, entitled, "Considérations sur les Frontons," &c., by Stanislas L'Eveillé, 4to. Paris, 1824, the subjoined excellent method of determining the height of a pediment is given. The author of this publication points out the absurdity of regulating it by the usual rules, and shows that a blind adherence to them may produce the most ridiculous errors: for instance, a tympanum higher than the columns by which it is borne.—[Ed.]



From the points a, b, the extreme boundaries of the corona, with a radius a, b, describe the arcs $a\,x$, $b\,x$, and from their intersection x, with the same radius $a\,b$, describe the arc $a\,y\,b$. On y, with a radius, the depth of the horizontal cornice, describe the portion of the circle $f\,y\,g$, and tangentially to its upper part draw $y\,b$, $y\,a$, which give the inclination of the upper member of the corona.

The other lines are parallels dependent on these, and will not need further explanation.

NOTE ON PEDIMENTS.

Even considered merely æsthetically, the Pediment is of great value in composition, for the reason that it produces variety, the oblique or diagonal lines of its raking cornices contrasting favourably with the others, and thereby breaking up horizontality and rectangularity, besides which, its apex serves to emphasise, by distinctly pronouncing it the central line of the whole composition. To a prostyle of any kind,—that is, a range of columns projecting from the main structure, a pediment is almost a *sine quâ non*. Without one, it shows too much like an excrescence, which having no marked termination to it might be extended indefinitely.

With regard to the decoration of pediments, almost the only mode hitherto devised is that of filling up the tympanum with a crowd of figures squeezed into what is the most ungainly of framings, and one which compels the most monotonous treatment,—a tall figure in the centre, accompanied by others which grow gradually less, till they diminish into dwarfs crouching into the acute angles of such framing. No doubt, a pediment, as being the very front and forehead of a portico, is a very proper place for decoration, for without something to enrich it, it is apt to strike as bare and blank, more especially if ornateness is affected for the order and the rest of the structure. It does not follow, however, that it must of necessity either be left blank or filled in with phonetic sculpture, which in modern buildings is scarcely ever better than an enigma in stone. The same degree of enrichment may be produced just as well by ornamental carving as by figure sculpture, or perhaps better, because then what seems intended to challenge particular examination would not be put where it cannot be seen properly. In his "Principles of Design in Architecture," Garbett has started an idea for decorating the tympanum of a pediment, of which much might be made. Or if figures there must be, three are quite sufficient; they would acquire importance by showing themselves far more distinctly than a mob of them can possibly do, and be introduced with far greater propriety than the same number of statues perched on the apex and extremities of a pediment, where they make no better appearance than so many pinnacles, nor even so good, for they always seem to stand insecurely and totteringly, and to be put where any statue worth looking at ought never to be placed.

To go satisfactorily into the subject of pediments would require not only a note but an entire chapter, and not only a chapter but a special treatise on the use and abuse of the pediment. Of its abuse Chambers himself has shown us many instances, among them one most notable for its execrable hideousness. Never even in his maddest freaks did Borromini put forth anything like the morbid maniacal strength of Vasari (shown in Plate 22). Borromini may have been insane, but Vasari must have been a downright raving Bedlamite.

One of the simplest and safest rules for regulating the height of a pediment, is to proportionate it in accordance with the horizontal entablature beneath it, so that its height and bulk never seem oppressive to the latter.

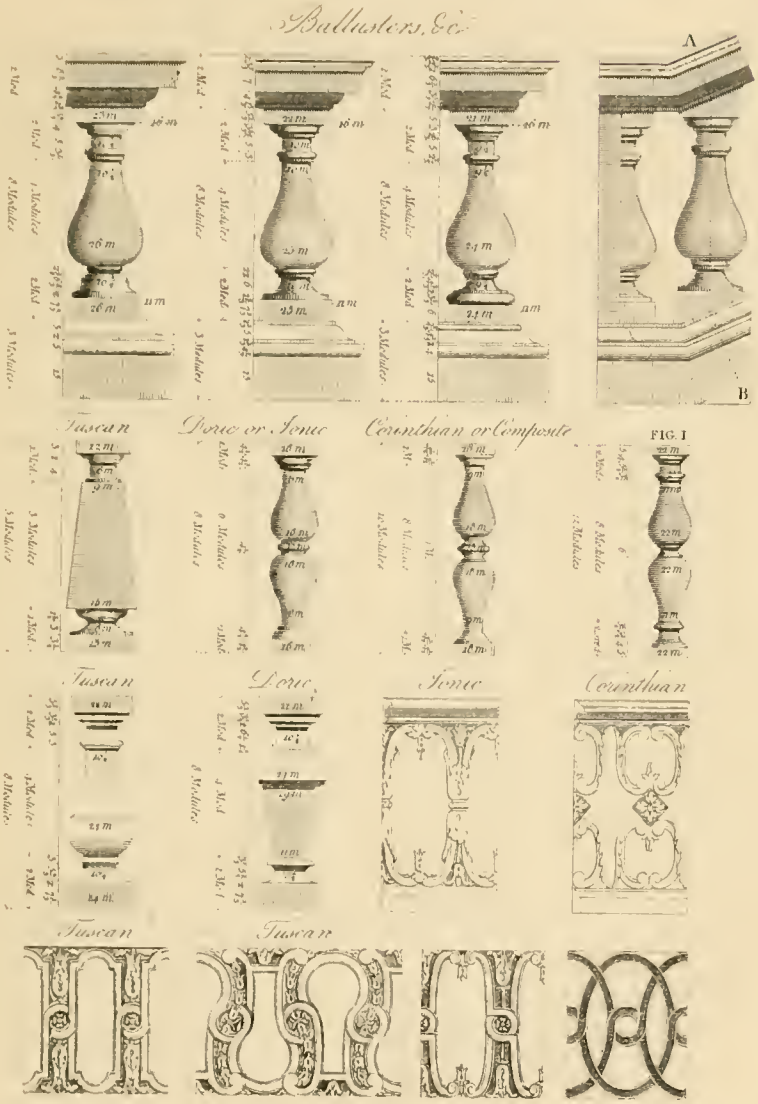
Chambers gives it as his opinion that when a pediment is small it is better to leave its tympanum quite plain; but there we may be permitted to dissent from him, for carved ornament is not out of place within the pediments to windows where an unusual degree of richness is aimed at. Sir C. Barry has left an example of such decoration in the principal floor windows of Bridgewater House.—[W. H. L.]

OF BALUSTRADES.

Balustrades are sometimes of real use in building, and at other times they are merely ornamental. Such as are intended for use, as when they are employed on steps or stairs, before windows, or to enclose terraces or other elevated places of resort, must always be nearly of the same height, never exceeding three feet and a half, nor ever being less than three, that so a person of an ordinary size may, with ease, lean over them without being in danger of falling. But those that are principally designed for ornament, as when they finish a building, or even for use and ornament, as when they enclose the passage over a large bridge, should be proportioned to the architecture they accompany; and their height ought never to exceed four-fifths of the height of the entablature on which they are placed; nor should it ever be less than two-thirds thereof, without counting the zoccolo or plinth, the height of which must be sufficient to leave the whole balustrade exposed to view from the point of sight for the building. Palladio has, in some of his works, made the height of the balustrade equal to the whole entablature, and Inigo Jones has followed his example in many of his buildings, particularly at the Banqueting House; where, besides this extraordinary loftiness, it is raised on a very high plinth. I do not think either of these great artists are to be imitated in this practice, as it renders the balustrade much too predominant, and very prejudicial to the effect of other parts in the composition, particularly of the entablature to which it is contiguous.

There are various figures of balusters,* the most regular of which are delineated in the annexed plate. The handsomest are the three in the first row, their profiles and dimensions are all different; the simplest of them may

* Baluster—The word is said to be derived from *Balaustrum*, or the Greek Βαλαυστιον, the flower of the wild pomegranate tree, a resemblance between the form of which and the architectural baluster has been discovered by some. The use of the baluster was unknown to the ancients. There is no trace of it in any of their works. Perhaps the most ancient are to be found in Italy, and it may be considered an invention which first appeared on the revival of the arts in that country. There are singular specimens of it at Venice and at Florence. The first used were generally in the shape of stunted columns, and there are many examples of it surmounted by the Ionic capital.—[Ed.]



F. H. Groves sc. W. Chambers J. Porter

Published by the Proprietors of the Building News, 1860

SIR WILLIAM CHAMBERS' TREATISE.

Printed from Stone by J. F. Cheffins & Son London

serve to finish a Tuscan order, and the others may be employed in the Doric, Ionic, Composite or Corinthian orders, according to their degrees of richness.

The best proportion for balustrades of this kind is to divide the whole given height into thirteen equal parts, and to make the height of the baluster eight of those parts, the height of the base three, and that of the cornice or rail, two. Or, if it should be required to make the baluster less, the height may be divided into fourteen parts, giving eight of these to the baluster, four to the base, and two to the rail; one of the parts may be called a module, and being divided into nine minutes, serve to determine the dimensions of the particular members, as in the annexed designs.

The other balusters exhibited in the same plate are likewise perfect in their kinds, and collected from the works of Palladio, or other great masters. The double-bellied ones being the lightest, are therefore properest to accompany windows or other compositions of which the parts are small and the profiles delicate. The base and rail of these balusters may be of the same profile as for the single-bellied ones, but they must not be quite so large. Two-ninths of the baluster will be a proper height for the rail, and three for the base. The proportions of the balusters may easily be gathered from the designs, where they are marked in figures, the whole height of each being divided into such a number of parts as is most convenient for the determination of the inferior divisions; one of these parts is the module, and is divided into nine minutes.

In balustrades, the distance between two balusters should not exceed half the diameter of the baluster, measured in its thickest part, nor be less than one-third of it. The pedestals that support the rail should be at a reasonable distance from each other; for, if they be too frequent, the balustrade will have a heavy appearance; and if they be far asunder, it will be weak. The most eligible distance between them is when room is left in each interval for eight or nine whole balusters besides the two half ones engaged in the flanks of the pedestals. But as the disposition of the pedestals depends on the situation of the piers, pilasters, or columns in the front, it being always deemed necessary to place a pedestal directly over the middle of each of these; it frequently happens that the intervals are sufficient to contain sixteen or eighteen balusters. In this case, each range may be divided into two, or which is better, three intervals, by placing a dye, or two dyes, in the range, each flanked with two half-balusters. The breadth of these dyes may be from two-thirds to three-quarters of the breadth of those of the principal pedestals. It will be best to continue the rail and base over and under them in a straight line, without

breaks; for frequent breaks of any kind, tending to complicate without necessity, are defects, and most so when of different dimensions, because they then complicate more, and serve to render the confusion greater.

The breadth of the principal pedestals, when placed on columns or pilasters, is regulated by them, the dye never being made broader than the top of the shaft, nor ever much narrower; and when there are neither columns nor pilasters in the composition, the dye should never be much broader than its height, and very seldom narrower; on the contrary, it is often judicious to flank the principal pedestals on each side with half dyes, particularly where the ranges are long, and divided in the manner above mentioned, as well to mark and give consequence to these pedestals, as to support the ends of the rails, and give both apparent and real solidity. In such case, these principal pedestals must break forward more or less as the nature of the design may require, and the base and rail must profile round them.

On stairs, or other inclined planes, the same proportions are to be observed as on horizontal ones. It is, indeed, sometimes customary to make the mouldings of the balusters follow the inclination of the plane; but this is difficult to execute, and, when done, not very handsome, so that it will be better to keep them always horizontal, and shape the abacus and plinth in the form of wedges, as in figure A B, plate of balusters, making their height, at the axis of the baluster, the same as usual. The distance between two balusters on inclined planes must not be quite so much as when they are in a horizontal situation, because the thickest parts do not then come on the same level. Le Clerc* thinks it best to finish the inclined balustrades of stairs or steps with horizontal pedestals placed on the floor or pavement to which they descend. The method of joining the horizontal mouldings of these to the inclined ones of the rail and base of the balustrade, is expressed in figure A of the annexed plate.

As the intention of balustrades is properly to enclose terraces, and other heights to which men resort, in order to prevent accidents, it is an impropriety, as D'Aviler† observes, to place them on the inclined cornices of pediments, as

* "Dans les Balustrades d'escaliers le socle doit être de la hauteur des Marches, et la Balustrade se termine beaucoup mieux par un Piédestal sur le pavé," &c. See Le Clerc, Traité d'Architecture, sect. 7.—[Ed.]

† "C'est un abus de feindre des Balustrades devant les trémeaux et piliers d'une Façade, ainsi qu'à la Maison de Ville de Lyon; de mesme que d'en mettre sur les corniches rampantes d'un fronton pointu, comme aux Eglises de Sainte Marie de la Victoire et de Sainte Suzanne devant la place de *Termini*, et les Greniers publics de Rome." See Cours d'Architecture, par A. C. D'Aviler, Art. Balustre, Tom. i. p. 321.—[Ed.]

at St^a. Susanna* and St^a. Maria della Vittoria,† near Dioclesian's baths, at Rome, or in any other places where it is not, apparently at least, practicable for men to walk.

Wherever balustrades are used in interior decorations, as on stairs, or to enclose altars, thrones, tribunals, alcoves, buffets, or music galleries in public assembly rooms, or when in gardens they enclose basins of water, fountains, or any other decorations, the forms of the balusters may be varied, and enriched with ornaments properly adapted to the place they serve to secure and adorn.

When statues are placed upon a balustrade, their height should not exceed one-quarter of the column and entablature on which the balustrade stands. Their attitudes must be upright, or, if anything, bending a little forwards, but never inclined to either side. Their legs must be close to each other, and the draperies close to their bodies; for whenever they stand straddling, with bodies tortured into a variety of bends, and draperies waving in the wind, as those placed on the colonnades of St. Peter's, they have a most disagreeable effect, especially at a distance, from whence they appear like lumps of unformed materials, ready to drop upon the heads of passengers. The three figures placed on the pediment of Lord Spencer's house‡ in the Green Park, which were executed by the late ingenious Mr. Spang, are well composed for the purpose. The height of vases placed upon balustrades should not exceed two-thirds of the height given to statues.

Some there are who think statues of the human figure, employed to decorate buildings, should never exceed the real human size, alleging that they are the scales by which we judge of grandeur, and that, therefore, any increase

* The façade of this church was by Carlo Maderno, the subject of the following note.—[Ed.]

† By Carlo Maderno, born 1556, died 1629. This was the architect who changed the plan of St. Peter's from a Greek into a Latin cross, besides other works about that fabric which did him no credit. He was a native of Bissone on the Lago di Como. Forsyth, in his admirable "Remarks on Antiquities, Arts, and Letters in Italy," 8vo. Lond. 1816, 2nd Edition, speaking of St. Peter's says, "Michael Angelo left it an unfinished monument of his proud, towering, gigantic powers, and his awful genius watched over his successors, till at last a wretched plasterer came down from Como to break the sacred unity of the master idea, and him we must execrate for the Latin cross, the aisles, the attic, and the front." The foot which he added to the cross was executed in the most disgraceful manner; instead of continuing it in a direction parallel to the central line from west to east, he laid his foundations so inaccurate, that the adjunct swerves three feet and nearly two inches northward from the proper direction, and to coax the blunder, he made the nave wider at the eastern than at the western end. I ascertained this deviation by boning a line along the plinths on the pavement, and can therefore vouch for the accuracy of the dimension stated.—[Ed.]

‡ By J. Vardy, Architect.—[Ed.]

of dimension in them must necessarily lessen the grandeur of appearance in the whole structure.

For my own part, I cannot be of their opinion, being persuaded that few, if any, judge by such far-fetched comparisons, and that no violent impressions can be made upon the mind by combinations which are too complicated to be instantaneous; it is indeed true that statues of an enormous size make the architecture which they accompany appear trifling; but it is as true, that diminutive ones make it appear clumsy. Yet neither of these effects are owing to the forms, but entirely to the dimensions of the objects; for it is very certain, that if instead of statues, flower pots, bomb shells, flaming altars, or any other things of a disproportionate size were employed, they would produce the very same effect, though they were ever so unlike either the human figure, or any other animal being whatever. It will therefore be proper on all occasions, where statues are employed in decorations of architecture, to observe the proportion above established, which is built upon the practice of the greatest architects of preceding ages, whose aim it constantly was to give to each object its due consequence in the composition, without detriment to the rest, that so all might equally contribute to produce the general wished-for effect.

Others there are who totally reject the practice of placing statues on the outsides of buildings, founding their doctrine, probably, upon a remark which I have somewhere met with in a French author, importing that neither men, nor even angels or demi-gods, could stand in all weathers upon the tops of houses and churches.

The observation is wise, no doubt; yet, as a piece of marble or stone is not likely to be mistaken for a live demi-god, and as statues, when properly introduced, are by far the most graceful terminations of a composition, one of the most abundant sources of varied entertainment, and amongst the richest, most durable and elegant ornaments of a structure, it may be hoped they will still continue to be tolerated.

In interior decorations it is sometimes customary to employ, instead of balusters, certain ornaments called Frets, or *Guilloches*. I have in the plate of balusters given some designs of such for the use of those who incline to employ them, and many others may be found in Le Pautre's,* and other

* There were three of them, Antoine Le Pautre, an architect of Paris, who excelled in the ornamental parts of his edifices. He was a member of the academy of Sculpture, and his works were published in Paris, fol. 1652.

Jean Le Pautre, a relation of the former, was born in 1617. He was a member of the Academy of Painting and Sculpture, and was considered an excellent engraver as well as designer of architectural ornaments. He died in 1682; his plates have been collected in 3 vols. folio.

Pierre Le Pautre, son of the last named, applied himself chiefly to sculpture, and became director

ornamental publications. But it will be advisable to use them sparingly; for representing leaves, ribands and flowers, they do not carry with them any idea of strength, and appear therefore not calculated for a fence or any thing to lean upon.

of the Academy of Lt. Luke at Rome, where he executed a group, much celebrated at the time, of Æneas and Anchises—and another of Lucretia stabbing herself. Pierre died in 1744 at the age of 84.—[Ed.]

NOTE ON BALUSTERS.

It is not undeservedly that the Baluster has been called one of the happiest inventions of the moderns; and it is worthy of note that though its office is analogous to that of the column, both the one and the other being employed to support a horizontal member, they are totally different in their configuration and proportions, the baluster being, relatively to its size, far more bulky than a column. The beauty of the one is quite antithetical to that of the other. Supposing it were practicable to make them so, columns shaped and proportioned like balusters would be downright monstrosities, revolting to common sense; and, on the other hand, balusters shaped like diminutive columns are a tasteless solecism. Why, then, is it so?—how happens it that the same form that would be offensively clumsy for a column, becomes pleasing and even graceful in the baluster? The answer to the question is not very far to seek: it is simply because forms pleasing as those of smaller members, when applied as those of larger features would, even if practicable, become absurd by their evident misapplication and unfitness; and *vice versâ* it is the same.

The singled-bellied baluster is by far more graceful and pleasing than the double-bellied, which looks comparatively feeble, minikin and poor; whereas the former possesses more of developed rotundity and flowing contour.

Although he has pointed out and justly censured one egregious instance of the misapplication of a balustrade, Chambers himself has fallen into an error of a similar kind, by crowning the summit of a small dome with a balustrade, as may be seen in plate 42.

Whether the baluster owed its origin to the play of a freakish imagination, that fused together the forms of vase and column, history and the records of art say not.—[W. H. L.]

OF GATES, DOORS AND PIERS.

There are two kinds of entrances, doors and gates. The former serve only for the passage of persons on foot, but the latter are likewise contrived to admit horsemen and carriages. Doors are used as entrances to churches and other public buildings, to common dwelling-houses, and as communications between the different rooms of apartments; gates serve as inlets to cities, fortresses, parks, gardens, palaces, and all places to which there is a frequent resort of carriages. The apertures of gates being always wide, they are generally made in the form of arches, that figure being the strongest; but doors, which are usually of smaller dimensions, are commonly of a parallelogram figure, and closed horizontally. The ancients, indeed, sometimes made their doors, and even their windows, narrower at the top than at the bottom; in the Temple of Vesta at Tivoli there are examples of both, and Vitruvius, in the sixth chapter of his fourth book, lays down rules for the formation of Doric, Ionic, and Attic doors, by which the apertures of all are made considerably narrower at the top than at the bottom. This oddity has been very little practised by the modern artists. Scamozzi* disapproves of it, so do several other writers, and it is a matter of surprise that a person of such refined taste as the Earl of Burlington† should have introduced a couple of these ill-formed doors in the *cortile* of his house in Piccadilly.

* Scamozzi, Parte seconda, lib. 6. cap. 14.—[Ed.]

† Richard Boyle, Earl of Burlington, says Walpole, "had every quality of a genius and artist except envy. Though his own designs were more chaste and classic than Kent's, he entertained him in his house till his death, and was more studious to extend his friend's fame than his own. Nor was his munificence confined to himself and his own houses and gardens. He spent great sums in contributing to public works, and was known to choose that the expense should fall on himself, rather than that his country should be deprived of some beautiful edifices. His enthusiasm for the works of Inigo Jones was so active, that he repaired the church of Covent Garden, because it was the production of that great master, and purchased a gateway at Beaufort Garden in Chelsea, and transported the identical stones to Chiswick with religious attachment. With the same zeal for pure architecture he assisted Kent in publishing the designs for Whitehall, and gave a beautiful edition of the antique baths from the drawings of Palladio, whose papers he procured with great cost."—Walpole's architects in the reign of George II.

Among his works are enumerated the front and colonnade at Burlington House in Piccadilly; the dormitory at Westminster School, to which institution he was most probably indebted for his education; the Assembly Room at York; Lord Harrington's at Petersham; General Wade's house in Cork Street, &c. This munificent nobleman was born 25th April, 1695, and died December, 1753.—[Ed.]

It must, however, be allowed that they, like some other uncouth things, have one valuable property: they shut themselves; which, in a country where neither man nor woman takes thought or trouble about shutting doors after them, deserves its praise, and was, perhaps, the original cause of their introduction among the ancients.

The general proportion for the apertures, both of gates and doors,* whether arched or quadrangular, is that the height be about double their breadth, or a trifle more. Necessity, probably, gave birth to this proportion, which habit confirmed and rendered absolute. In the primitive huts the entries were doubtless small, perhaps in imitation of those to swallows' nests, no larger than was sufficient for a man to creep through. For those rude buildings being intended merely as retreats in the night, or in times of bad weather, it is natural to suppose they made the entrance to them as small as possible, to exclude the air and rain; but when architecture improved and methods were discovered of shutting the door occasionally, they made it of such a size as was necessary for giving admittance to a tall bulky man, without stooping or turning aside; that is, they made it about three feet wide and six feet high, or twice as high as broad; which proportion, being become habitual, was preferred to any other, and observed even when the size of the entrance was considerably augmented, and other proportions would have been equally convenient.

We may, I believe, look for the origin of many proportions in the same source, and of forms, in their aptitude to the purposes they serve, particularly with relation to such objects as were or are of real use; and the pleasure excited in us at their sight must, I am persuaded, be ascribed rather to convenience, custom, prejudice, or to the habit of connecting other ideas with these figures, than to any peculiar charm inherent in them, as some are disposed to maintain.

Thus when struck with a fair female face, bright eyes, a florid complexion, good teeth, well-turned limbs, a smooth unspotted skin, it is not so much the form of color, the elegant turn or smoothness of the frame, which affects us, as the inferences deduced from these appearances of the general state of mind, the bodily health and activity, the purity and fragrance, the sensibility and powers of communicating pleasure, inherent in the beloved object; for if those sparkling eyes have borne false testimony, or those limbs, which indicated agility and graceful motion, are found sluggard, heavy and awkward; if,

* The note, page 209, relates to the proportions of arcades according to Le Brun's theory, but in his work, to which the reader is referred, it will be seen that he has not neglected the consideration of those of doors.—[Ed.]

instead of purity and fragrance, their opposites offend the senses, and instead of sensibility, dulness or distaste, our affection quickly abates, and the same object which commanded our love, soon excites no other emotion than that of indifference, perhaps of disgust, and even aversion.

And thus with regard to structures, whether considered in their general form or separately in their parts, whenever the masses and sub-divisions are few in number, firmly marked by quick and opposite transitions, the breadths and widths being predominant, we are impressed with ideas of grandeur, majesty, manly strength and decorous gravity; and when the composition appears more detailed, the changes gradual and less contrasted, the heights predominant, we are impressed with ideas of elegance, delicacy, lightness and gaiety. Excesses in either of these cases are equally dangerous, and productive of sensations, though opposite, yet equally disgusting; a step beyond the bounds of grandeur, sinks into clumsiness and ponderosity; a step beyond the limits of elegance, degenerates into weakness, triviality and affectation. Perfection consists in mediums between extremes, and forcible effects are produced by verging towards them; all which the rules of art tend to point out and to explain.

Our Saxon and Norman forefathers,* ultimate corruptors of the almost effaced Roman architecture, sufficiently prove, by the remains of their churches, monasteries and castles, to what extent barbarism may carry deformity, gloom, unwieldy grandeur, and clumsy solidity; and their successors of the thirteenth century, though following a manner infinitely more scientific and regular, often

* In a German work by George Moller, intitled "Denkmaehler der Deutschen Baukunst," which has been recently translated, and published in this country, there is a philosophical and highly interesting view of the origin and progress of what is usually denominated Gothic Architecture. This author, says chap. 3, "on comparing the antient churches of Germany with each other, we discover in their style of building two leading differences, all the others being mere gradations or combinations of them. The first, which is oldest, is foreign, and came from the south. It is by no means rude, having been originally a highly finished style of building, but is now degenerated. The buildings of this kind are distinguished by forms and decorations, either Roman or imitated from the Roman, but especially by flat, or at least not very high roofs, by semicircular arches and vaults, and by the great solidity of their construction. The second, and more modern style of building still retains the semicircle, but begins to substitute for the southern flat gable end the high roof, which is more suitable for a northern climate. To harmonize with the shape of the roof, the points of the towers are pyramidal and the windows and vaults in the pointed style, whilst all the minor ornaments still preserve the semicircular form. It was only at a later period that the decorations, and all the minor and subordinate parts of the main building, assumed the shape of the pointed arch." "These are the chief features in the church architecture of Germany observable in ancient buildings. They show how a northern peculiar style was gradually formed out of the foreign southern one, and they are by no means in contradiction to history, although we are still ignorant of the many causes which may have influenced the improvement of the art." A perusal, however, of the work in question is strongly recommended to the student.—[Ed.]

carried elegance, lightness, and excessive decoration far beyond their proper limits, till, in the fifteenth and sixteenth centuries, that manner had its last polish among us, was cleared of its redundancies, improved in its forms, simplified and perfected in its decorations, in short, made what it is, in some of the last structures of that style, the admiration of all enlightened observers.

Amongst the restorers of the ancient Roman architecture, the style of Palladio is correct and elegant, his general dispositions are often happy, his outlines distinct and regular, his forms graceful; little appears that could with propriety be spared, nothing seems wanting, and all his measures accord so well that no part attracts the attention in prejudice to any of the rest.

Scamozzi, in attempting to refine upon the style of Palladio, has over-detailed and rendered his own rather trifling, sometimes confused. Vignola's manner, though bolder and more stately than that of Palladio, is yet correct, and curbed within due limits, particularly in his orders; but in Michael Angelo's* we see license, majesty, grandeur, and fierce effect extended to bounds, beyond which it would be very dangerous to soar.

But whether there be anything natural, positive, convincing, and self-amiable in the proportions of architecture, which, like notes and accord in music, seize upon the mind, and necessarily excite the same sensations in all, or whether they were first established by consent of the ancient artists, who imitated each other, and were first admired because accompanied with other real convincing beauties, such as richness of materials, brilliancy of color, fine polish, or excellence of workmanship, and were after only preferred through prejudice or habit, are questions which have much occupied the learned. Those who wish to see the arguments for and against these respective notions, are referred to Perrault, Blondel, and other writers upon the subject. To the plurality of students in the profession it may be sufficient to observe, without attempting to determine in favour of either side, that both agree in their conclusion; the maintainers of harmonic proportions proving their system by the measures observed in the most esteemed buildings of antiquity, and the supporters of the opposite doctrine allowing that, as both artists and critics

* It is rather surprising that our author should have made so little mention of Sanmichele in his work. Sanmichele was an artist whose designs can never be too much studied by the architect. The fancy and elegance he displayed in combining military and civil purposes in the same edifice entitle him to the highest rank in his profession. He was the inventor of triangular bastions in fortifications, of which honor Pagan, Blondel and Vauban have endeavoured to deprive him. Of his many works in civil architecture it would be unjust not to mention the Cappella Pellegrini at Verona, which for beauty and invention has rarely been equalled. He was born at the last-named city in 1484, and died in 1559.—[Ed.]

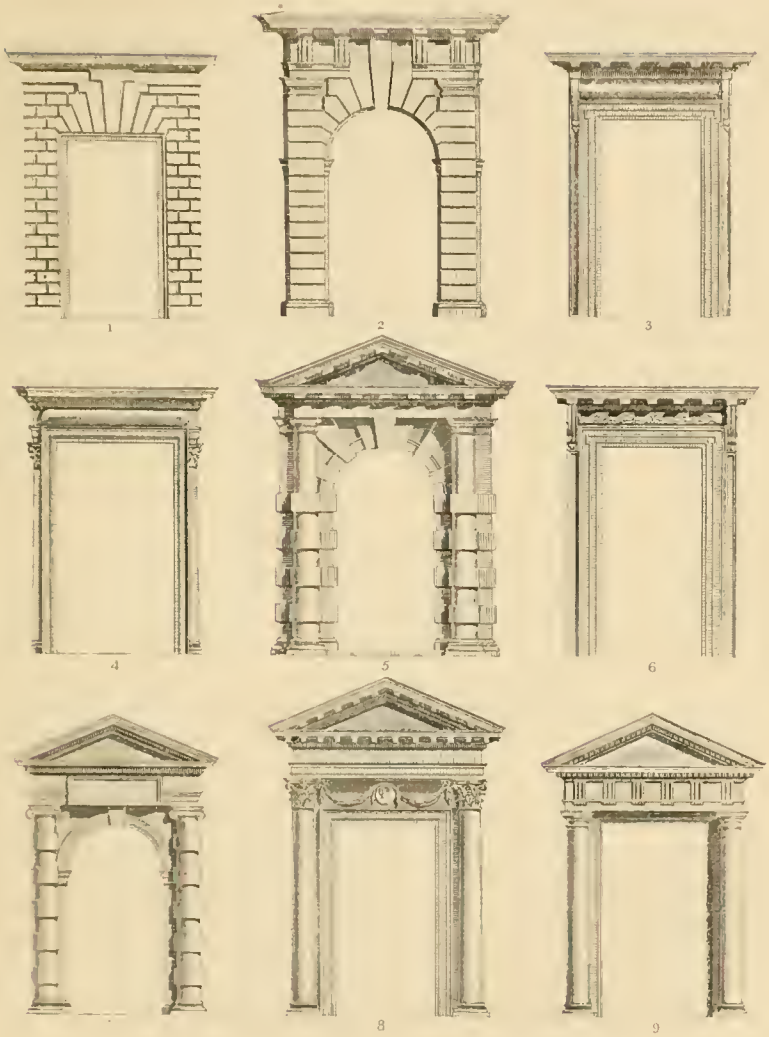
form their ideas of perfection upon these same buildings of antiquity, there cannot be a more infallible way of pleasing than by imitating that which is so universally approved.

It must, however, be observed that sounds operate very differently from visible objects; the former of which affect all, and always in the same manner. The operation being merely mechanical, the same sort of vibration produces at all times the same effect, as equal strokes upon a bell produce the same sounds; but visible objects act differently. Their effect is not alone produced by the image on the organ of sight, but by a series of reasoning and association of ideas, impressed, and guiding the mind in its decision. Hence it is, that the same object pleases one, and is disliked by another; or delights to-day, is seen with indifference or disgust to-morrow; for if the object seen had alone the power of affecting, as is the case with sounds, it must affect all men alike, and at all times in the same manner, which by long and repeated experience we know is not the case.

One certain source of general approbation, which admits of no dispute, nor is subject to any exceptions, is a strict conformity of character between the object and its application, between the whole and the parts of which that whole is composed; the least discord between these immediately seizes upon the mind and excites disgust, contempt or ridicule, in proportion as the deviations appear greater or less, more unusual or more unnatural; and it is further to be observed that the same proportions, the same objects and combinations which satisfy, even excite admiration in one case, or upon one occasion, may excite dislike in others if erroneously applied, of which there cannot be a stronger illustration than the human frame, male and female, since almost every quality which constitutes perfection in one, becomes, by being applied to the other, a striking blemish either of a disgusting or ridiculous nature.

The usual ornaments of gates consist of columns, pilasters, entablatures, pediments, rustics of various sorts, imposts, archivolts, consoles, masks, &c., &c.; and the common method of adorning doors is with an architrave surrounding the sides and top of the aperture, on which are placed a regular frieze and cornice. Sometimes, too, the cornice is supported by a couple of consoles, placed one on each side of the door; and sometimes, besides an architrave, the aperture is adorned with columns, pilasters, caryatides, or terms, supporting a regular entablature, with a pediment, or with some other termination either of architecture or sculpture. In the two annexed plates are given various designs of gates and doors.

Designs for Doors



W. Chambers inv. J. Roffe sc.

Published by the Proprietors of the Building News, 1860

Printed from Stone by F. Griffiths & Son, London

Fig. 1 in the plate of doors is a rustic door, composed by Vignola, in which the aperture occupies two-thirds of the whole height and one-half of the whole breadth, the figure thereof being a double square. The rustics may be either smooth or hatched, frosted or vermiculated, but their outline must be sharp, and their joints must form a rectangle. Each joint may be in breadth one-third or two-sevenths of the vertical surface of a rustic. The joints of the *Claveaux*, or arch-stones, must be drawn towards the summit of an equilateral triangle, whose base is the top of the aperture. The architrave surrounding the aperture may be composed either of a large ogee and fillet, or of a plat-band, congé, and fillet. Its whole breadth must be one-tenth of the breadth of the aperture, the remaining part of each pier being left for the rustics. The entablature is Tuscan; the cornice thereof is to be one-fifteenth of the whole height of the door; and what remains below it being divided into twenty-one equal parts, the two uppermost of them will be for the frieze and architrave, and the remaining nineteen for the rustics and plinth at the foot of the door. Fig. 2 is another very beautiful composition of the same great master, executed by him at the palace of Caprarola,* in the Ecclesiastical State, and copied by Inigo Jones in the hospital at Greenwich, a circumstance which pleads strongly in its favour, though I cannot say but our English architect has altered the proportions of the original much for the worse. The aperture is in the form of an arch, and occupies somewhat more than two-thirds of the whole height. It is adorned with two rusticated Doric pilasters, and a regular entablature. The height of the pilasters is sixteen modules, that of the entablature, four. The width of the aperture is seven modules, its height fourteen, and the breadth of each pier is three modules. Fig. 3 is likewise a design of Vignola. It is of the Corinthian order, and executed in the Cancellaria at Rome. The height of the aperture is equal to double its width, and the whole ornament or entablature at the top is equal to one-third of the height of the aperture. The breadth of the architrave is one-fifth of the width of the aperture, and the pilasters which support the consoles are half as broad as the architrave. The whole is well imagined, but rather heavy, and it would succeed better if the architrave were reduced to one-sixth of the aperture, the whole entablature being proportionably diminished. The pilasters may remain of the breadth they now are, which is not too considerable Fig. 4 is a disposition of Michael Angelo. The windows of the Capitol are of

* For a description of this palace see note page 217.—[Ed.]

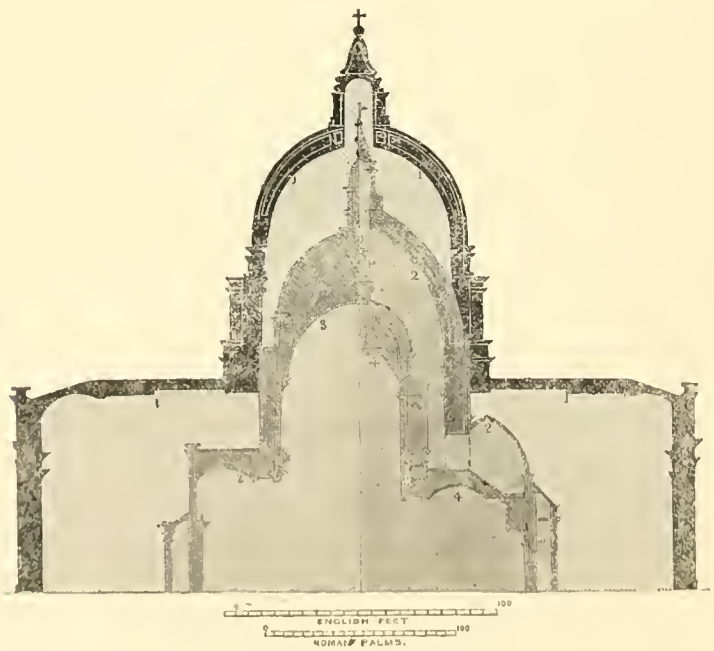
this kind, and Sir Christopher Wren* has executed doors of this sort under the beautiful semi-circular porches in the flanks of St. Paul's Cathedral. The

* The life of this celebrated man is so familiar to the English student that it is almost unnecessary to give the following sketch.

Sir Christopher, the only son of Dr. Christopher Wren, Dean of Windsor, was born on the 20th day of October, 1632. His mother was Mary, daughter and heiress of Mr. Robert Cox, of Fonthill, in the county of Wilts. He was placed under Dr. Busby, at Westminster School in 1643, and admitted at the age of fourteen a gentleman commoner at Wadham College, Oxford, where he acquired great mathematical reputation. He proceeded B.A. in 1650, M.A. 1653, and in the same year was elected a fellow of All Souls. In 1657, being then only twenty-five, he was chosen Gresham Professor of Astronomy, and in 1660 Savilian Professor of Astronomy at Oxford. In 1661 he took his degree of D.C.L. at Oxford, and soon after that period was admitted to the same degree at Cambridge.

In 1667-8, two years after he had visited Paris, he succeeded Sir John Denham, the poet, a strange sort of person to have filled the situation Inigo Jones held, as surveyor-general; and in 1674 his Majesty conferred on him the honour of knighthood. In 1680 he was elected President of the Royal Society. He sat in two parliaments; in the first for Plympton, in Devonshire, and in the other for Weymouth and Melcombe Regis. Sir Christopher was twice returned for New Windsor, and, upon petitions against the returns, had the ill luck to be, upon opposite determinations of the house in respect of the identical same points, both times unsuccessful.

A comparative view of the four principal cathedrals in Europe is not, perhaps, improperly introduced in this note.



The sections above given are of St. Peter's at Rome, numbered 1; a half section of Sta. Maria del Fiore at Florence, numbered 2; a half section of St. Paul's, numbered 3; and a like section of the Pantheon at Paris, numbered 4. All to the same scale.

aperture of this design may be a double square, the architrave one-sixth of the width of the aperture, and the whole entablature one-quarter of its height. The front of the pilasters or columns on each side must be on a line with the lower fascia of the architrave, and their breadth must be a semi-diameter. Fig. 5 is imitated from a design of Philibert Delorme. It may serve either for a gate or outward door, by observing, in the former of these cases, to raise the columns on plinths, and in the latter, besides plinths, to place them on steps, as all outside doors ought to be, both because the lower apartments should never be on a level with the ground, and because this elevation will show the door, or indeed any other composition, to more advantage. The aperture may be in height twice its width, the piers may be a little more than half that width, and the columns must occupy half the breadth of the pier; their height may be eight diameters, or somewhat more, the architrave and cornice must bear the usual proportion to the columns, the frieze is omitted. The archivolt is in breadth a semi-diameter of the column, and its whole curve being divided into thirteen equal parts, there will be room for seven *Claveaux* and six intervals. The shafts of the column from the top of the impost downwards, if divided into eight equal parts, will afford room for four intervals and four rustic cinctures; whereof that which levels with the impost

It does not appear that Wren ever visited Italy, an omission to be much lamented, as it would doubtless have had a beneficial effect on his designs. To the eternal disgrace of the reign of George the First, he was, at the advanced age of eighty-six, after fifty years of useful, active, and laborious self-devotion to the service of the public, dismissed from the office of Surveyor-General. His death took place on the 25th February, 1723, in the ninety-first year of his age. Over the grave in which he was interred under the south aisle of the choir of St. Paul's, is the following inscription on a small marble tablet.

SUBTUS CONDITUR
HUJUS ECCLESIÆ, ET URBIS CONDITOR
CHRISTOPHORUS WREN,
QUI VIXIT ANNOS ULTRA NONAGINTA
NON SIBI, SED BONO PUBLICO.
LECTOR, SI MONUMENTUM REQUIRIS,
CIRCUMSPICE!
OBIIT XXV FEB. ANNO MDCCXXIII, ÆTAT. XCI.

The above inscription has of late years been transferred, in large characters, to a marble slab of considerable dimensions placed over the iron gates leading to the choir. Sir C. Wren's Autograph is subjoined.

may be square, as in Delorme's design, the rest of them being made either cylindrical or square at pleasure. Fig. 6 is a door in the saloon of the Farnese Palace at Rome, designed by Vignola. The aperture forms a double square, and the entablature is equal to three-elevenths of the aperture's height, the architrave being one of these elevenths. The whole ornament on the sides, consisting of the architrave and pilasters, is equal to two-sevenths of the width of the aperture. The cornice is Composite, enriched both with mutules and dentils, and the frieze is in the form of a festoon of laurel. Fig. 7 is copied from a door at Florence, said to be a design of Cigoli.* The height of the aperture is a trifle more than twice its width; it is arched. The impost is equal to half a diameter; the columns are Ionic, somewhat above nine diameters high, and their shafts are garnished, each with five rustic cinctures. The entablature is less than one-quarter of the column; and the length of the tablet, in which there is an inscription, is equal to the width of the aperture.

Fig. 8. is a composition of Inigo Jones. The aperture may be a double square; the architrave may be from one-sixth to one-seventh of the width of the aperture, and the top of it must level with the upper part of the astragal of the columns. The columns are Corinthian, their height is ten diameters, and they must be placed at a sufficient distance from the architrave to leave room for the projection of their bases. The entablature may be two-ninths or one-fifth of the column, according to the character of the building in which the door is employed, and the height of the pediment may be one-quarter of its base or somewhat less.

Fig. 9 is a design of Serlio.† The aperture may be either twice as high as broad, or a trifle less. The diameter of the columns may be equal to one-quarter of the width of the aperture, and their height may be from eight diameters to eight and a half. The entablature must be somewhat less than one-quarter of the height of the columns, and the height of the pediment may be one-quarter of its base, or a trifle less if required.

From these designs and descriptions, the manner of composing doors may easily be collected; and every man may invent a variety of other designs, suitable to the occasions on which they shall be wanted. Yet such as are not

* Luigi Cardi, commonly called Cigoli. An architect who offered designs in competition with Carlo Maderno, for the sides and façade of St. Peter's—but Paul V. preferred those presented by the latter. Cigoli was born in 1559, and died in 1613. Milizia says of him, "Fu buon Pittòre, Anatòmico, Poèta, eccellente Suonatore di liùto, ed Architetto." If so, he was no ordinary character.—[Ed.]

† See his fourth book.—[Ed.]

endued with the talent of invention, will do well to copy these, which are all very excellent in their kind; and for more variety, they may recur to the designs of windows contained in this work, which will, most of them, answer equally well for doors.

In the plate of gates and piers, Fig. 1 is a pier, of which the diameter may be one-quarter of its height, exclusive of the plinth and vase placed upon it; the height of both which may be equal to one diameter of the pier. The rustics may either be plain, chipped, frosted, or vermiculated; and the height of each course be one-eleventh part of the height of the pier, counting to the top of the entablature; the entablature two-elevenths, and the base of the pier one-eleventh part; or, if that should not be thought sufficient, one of the rustic courses may be left out, and the base be made two-elevenths instead of one. Fig. 2 is a gate, imitated from M. Angelo Buonaroti's design for Cardinal Sermonetti.* The height of the aperture is somewhat more than twice its width, which width occupies one-third of the breadth of the whole composition. The order is Composite, and the height of the entablature is equal to one-quarter of the height of the column. A break is made in it, over each column; but unless the columns project considerably, it will be as well to carry the entablature on in a straight line. The dimensions of the particular parts may be measured on the design. Fig. 3 is a design of piers executed at Goodwood,† in Sussex. The diameter is one-quarter of the height, exclusive of the finishing, which is equal to one diameter; and the height of the pier, from the top of the entablature downwards, being divided into eleven parts and a half, one of them is given to the base, one to each course of rustics, and one and a half to the astragal, frieze, and cornice. On many occasions, however, it may be proper to augment the height of the base, by omitting one of the rustic courses, and making it two parts instead of one. Fig. 4 is a composition of the late Earl of Burlington, which has been executed at his Lordship's Villa, near Chiswick, and likewise with some little difference at Bedford House,‡ in Bloomsbury Square. Fig. 5 is an invention of mine, which has been several times executed; and Fig. 6 is one of Inigo

* Sir W. Chambers has altered the design much for the better—the original may be seen in D'Aviler's Cours d'Architecture, in which the pediment is curved and broken in the middle for the reception of a tablet. There is also over the whole an acroterion full of the wildness of the master.—[Ed.]

† The seat of the Duke of Richmond.—[Ed.]

‡ Now no longer in existence, having been pulled down for the extensive alterations and new buildings in the neighbourhood of Russell Square. It stood on the north side of Bloomsbury Square, and was built on the designs of Inigo Jones. Behind the house were extensive gardens, which commanded a view of the county towards Hampstead and Highgate.—[Ed.]

Jones, which kind of pier he has executed at Amesbury,* in Wiltshire, the seat of his Grace the Duke of Queensbury.

Among the designs at the end of this work, there are various other compositions for gates, and any of the arches, either with or without pedestals, of which I have given designs in treating of arcades, may likewise be employed as gates; observing, however, where the piers are weak to fortify them, and make them at least equal to half the width of the aperture.

The first consideration, both in gates and doors, is the size of the aperture; in fixing the dimensions of which, regard must be had to the bulk of the bodies that are to pass through. For this reason, inside doors, however small the building may be in which they are used, should never be narrower than two feet nine inches; nor need they ever, in small private houses, exceed three feet six inches in width, which is more than sufficient to admit the bulkiest person, and enough for the passage of two moderate ones. Their height should, at the very least, be six feet nine inches, or seven feet; else a tall man with a hat, or a lady in feathers, cannot pass without stooping. In palaces, or great men's houses, to which much company resorts, and all the doors of the state apartments are frequently thrown open, they are made much larger than above mentioned; often four, five, or six feet wide, with folding doors, which shut back in the thickness of the party wall, and leave a free passage for the company from one room to another.

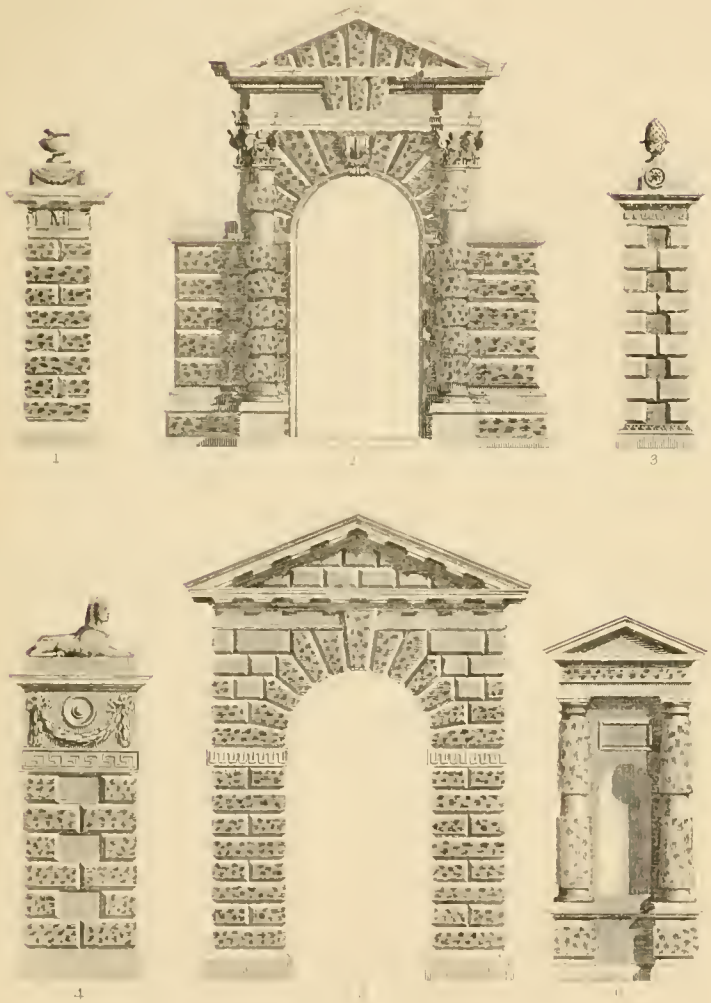
Doors of entrance to private houses should not be less than three feet six inches wide, nor more than six feet; but to churches, palaces, and other public structures, where there is a constant ingress and egress of people, and frequently great crowds, the apertures must be larger, and their width cannot be less than six feet, nor should it exceed ten or twelve.

The smallest width that can be given to the aperture of a gate is nine feet, which is but just sufficient for the free passage of coaches; but if waggons and loaded carts are likewise to pass, it must not be narrower than ten or eleven feet; and gates of cities or other entrances, where carriages are liable to meet, should not be narrower than eighteen or twenty feet. The same widths as are above mentioned, must likewise be given to the intervals between piers, which equally serve as entrances, and answer all the purposes of gates.

In settling the dimensions of the apertures of doors, regard must be had to the architecture with which the door is surrounded. If it be placed in the

* This house was finished by Webb, a scholar of Inigo Jones.—[Ed.]

Designs for Gates & Piers



W. Wilkins del. W. Chambers inv. etc.

Published by the Proprietors of the Building News, 1860

intercolumniation of an order, the height of the aperture should never exceed three-quarters of the space between the pavement and the architrave of the order; otherwise there cannot be room for the ornaments of the door. Nor should it ever be much less than two-thirds of that space, for then there will be room sufficient to introduce both an entablature and a pediment, without crowding: whereas if it be less, it will appear trifling, and the intercolumniation will not be sufficiently filled. The apertures of doors, placed in arches, are regulated by the imposts; the top of the cornice being generally made to level with the top of the impost. And when doors are placed in the same line with windows, the top of the aperture should level with the tops of the apertures of the windows; or if that be not practicable without making the door much larger than is necessary, the aperture may be lower than those of the windows, and the tops of all the cornices made on the same level.

With regard to the situation of the principal entrance, Palladio* observes, that it should be so placed as to admit of an easy communication with every part of the building. Scamozzi† compares it to the mouth of an animal; and as Nature, says he, has placed the one in the middle of the face, so the architect ought to place the other in the middle of the front of the edifice, that being the most noble situation, the most majestic and convenient.

In several of the palaces at Rome, as those of the Pamfili‡ in the Corso, and of the Bracciano§ at Santi Apostoli, there are two principal entrances in the same aspect: but this in general ought to be avoided, as it leaves strangers in doubt where to seek for the state apartments, which should always be contiguous to the principal entrance. In interior dispositions, the doors of communication must be situated, as much as possible, in a line; the advantages of which are, that it contributes towards the regularity of the decoration, facilitates and shortens the passage through the apartments, and

* "Si deve elèggere il luogo per le porte principàli, ove facilmente da tutta la casa si possa andàre." See Palladio, Lib. i. c. 25.—[Ed.]

† Our author misunderstands Scamozzi, whose words are, "E senza dùbbio di quì potero venìre quelle aprìture, le quali ne' primi tempi furono assegnàte nelle prime antìche case de' Pastòri, e degli Arcadi per uso del transitàre e gli huomini, e gli animali, e l'altre cose necessàrie alle loro bisogna, le quali cose dall' ingegno degli Architetti in progresso di tempo hebbero poi le loro forme proportionàte, e tutte le loro parti regolàte, ed abbellìte con ornamenti all' imposte, à gli archivolti, e a' serragli, &c." See Scamozzi, Parte Seconda, Lib. vi. c. 4.—[Ed.]

‡ By Giacomo del Duca, a Sicilian architect. But the façade toward the side of the Collègio Romàno, was by Borromini.—[Ed.]

§ By Giovanni Lorenzo Bernini, of whom see note page 71.—[Ed.]

in summer, or on public occasions, when the doors are set open, it produces a freer circulation of air; and likewise gives a much more splendid appearance to the apartments, by exposing to view at once the whole series of rooms, which is more particularly striking, when the apartments are illuminated, as on occasion of balls, masquerades, routs, or other rejoicings. There should, if possible, be a window at each end of the building, directly facing the line of the doors of communication; that so the view may be more extensive, and take in at once, not only all the rooms, but likewise parts of the gardens or other prospects surrounding the building; and whenever this is not practicable, it will do well to place mirrors at each end of the apartment, or to counterfeit doors, and fill them with large plates of glass, or with sashes and squares of looking-glass, as is the custom in France; which by reflection multiply the rooms, the doors, and other objects, making an apartment, though limited or small, appear very considerable.

The door of entrance from halls, vestibules, or ante-chambers, either to the principal apartment, or to any even of the inferior ones, should be in the middle of the room if possible, and facing a window; those that lead to galleries, or any other long rooms, should be in the middle of one of the ends; and, in general, all entrances should be so contrived as to offer to view, at the first glance, the most magnificent and extensive prospect of the place they open into. The doors of communication, from one room to another, of the same apartment, must be at least two feet distant from the front walls, that the tables placed against the piers, between the windows or other pieces of furniture put there, may not stand in the way of those who pass. In bed-rooms care must be taken to make no doors on the sides of the bed, unless it be to communicate with a water-closet, wardrobe, bath, or other conveniency of that kind, as well on account of the draught of air, as of the noise communicated through them, or attending their opening and shutting; both which are always troublesome, and on some occasions dangerous. Neither ought doors to be placed near chimneys, for the same reasons, and as the opening them would disturb those who sit by the fire.

In our northern climates, the fewer doors a room has, the more it will be comfortably habitable; for as we have much more cold than hot weather, it is very necessary to make the rooms as close as possible, otherwise they will not be fit to live in the greatest part of the year. Wherefore it will be advisable never to make either more windows or doors than are absolutely necessary; and the feigning doors to correspond with the real ones, may certainly be omitted on many or on most occasions. Here in England, the real and feigned

doors of a room, with their ornaments, frequently cover so great a part of the walls, that there is no place left for either pictures or furniture; and one often sees, in houses built forty or fifty years ago, particularly those designed by Mr. Kent, or Lord Burlington, a hall or a saloon large enough to receive a company of sixty or a hundred persons, furnished with six or eight chairs and a couple of tables.

In composing doors, regard must be had, both in their size and their enrichments, to the place they lead to. Those that give entrance to palaces, churches, theatres, state apartments, or other places of consequence, must be large and profusely enriched; but such as open to humbler habitations may be small and sparingly decorated, unless the nature of the building should require otherwise. Where several doors are in the same aspect, as on the inside of a hall, saloon, or gallery, they should all be of the same size and figure, unless there be many, in which case the principal ones, provided they stand in the middle of a side, or in the middle of the ends of the room, may be larger, of a different form, and more abundantly adorned than the rest. But whenever more than two sorts are introduced in one room, it always tends to confuse the spectator.

Gates in their composition must be characteristic; express the nature the place they open to, and by their dimensions, give some idea of its extent and importance. Gates of cities or of fortresses should have an appearance of strength and majesty; their parts should be large, few in number, and of a bold relief. The same ought likewise to be observed in the gates of parks, public walks, or gardens; and these succeed better when composed of rustic work, and of the massive orders, than when they are enriched with nice ornaments or delicate profiles. But triumphal arches, entrances to palaces, to magnificent villas, town or country houses, may with propriety be composed of the more delicate orders, and be adorned in the highest degree.

The gates of parks and gardens are commonly shut with iron folding grates, either plain or adorned; those of palaces should likewise be so, or else be left entirely open all day, as they are in Italy and in France; for the grandeur of the building, together with the domestics, horses, and carriages, with which the courts are frequently filled, give a magnificent idea of the proprietor, and serve to enliven the scenery.

In London, many of our noblemen's palaces appear from the street like prisons or gloomy convents; nothing is seen but high blank walls, with one, two, or three ponderous castle gates, in one of which there is a hole for the conveyance of those who aspire to get in, or wish to creep out. If a coach

arrives, the whole gate is indeed opened, but this is a work of time and hard labour; the more so, as the porter exerts his strength to shut it again immediately, either in discharge of his duty, or for some other reasons. Few inhabitants of this city suspect, and certainly few strangers ever knew, that behind an old brick wall in Piccadilly, there is, notwithstanding its faults, one of the finest pieces of architecture in Europe; and many very considerable, some even magnificent buildings, might be mentioned, that were never seen by any but the friends of the families they belonged to, or by such as are curious enough to peep into every out-of-the-way place they happen to find in their way.

The ancients frequently covered the closures of their doors with plates, and bassi relievi of bronze. There are some examples yet remaining of this practice, both at the Pantheon, and at St. John Lateran;* the doors of which last building formerly belonged to the temple of Saturn. The doors of St. Peter's of the Vatican are likewise covered with bronze; and at Florence, those of the baptistery, fronting the cathedral, adorned with a great number of figures by Lorenzo Ghiberti, are much esteemed. Of these we have now in the collection of the Royal Academy very perfect casts. But the extraordinary expense, and great weight of such doors, have occasioned their being laid aside, and wood alone is now used. The commonest sort are made of deal or wainscot, painted in various manners, and the better kind of them are of mahogany, or of different sorts of rare wood inlaid.

With regard to their construction, Mr. Ware observes, that strength, beauty, and straightness are to be considered; all which purposes are answered by composing them of several panels. The number of these must depend on the size of the door, which should likewise regulate the thickness both of the panels and the framing. If the doors be adorned with ornaments of sculpture, as is sometimes usual in very rich buildings, they must either be sunk in or kept very flat upon the surface, both for the sake of lightness and to prevent their being broken. The panels may be either raised or flat, and surrounded with one or two little plain or enriched mouldings, contained in the thickness of the framing; not projecting beyond it, as is sometimes seen in old buildings.

Doors that exceed three feet and a half in breadth, are generally composed

* The Basilica of San Giovanni Laterano unites specimens of the talents of the following architects:—Bernardo Rosellini, Vignola by whom is the tomb of Cardinal Ruccio in this church, Borromini who made the great nave and its termination westward, Alessandro Galilei who designed the façade. For the latter, designs were also given by Niccola Salvi and Luigi Vanvitelli.—[Ed.]

of two flaps; by which means each part is lighter, when open does not project so far into the room, and when required, may be made to fold entirely into the thickness of the wall, as has been above mentioned. It is to be observed, that all doors should open inwards, otherwise in opening the door to give a person entrance, it must open in his face, and may chance to knock him down.

NOTE ON DOORS.

In every style, doors, that is, entrance doors into a building, have been regarded as important features, and distinguished accordingly from other apertures, not only by their size, but by a much greater degree of decoration. The scale on which doorways, or as they ought rather to be designated *portals*, were sometimes executed by the ancients, was such both as regards amplitude and loftiness that scarcely a single modern example will bear any comparison with them in that respect. We can, indeed, boast of one grandiose, though not strikingly ornate, doorway in London, namely, that which forms the central feature of the west façade of the Bank, which for grandiosity has not its rival in the metropolis.

When, as in the façade of a church, or within a portico, there are three doorways, it is usual, and no more than natural likewise, to distinguish the central one, if not by its greater size, at least by some artistic stratagem; for even supposing the actual aperture to be no larger than the others, there are very obvious means of making it appear so, or, at any rate, of making it show itself decidedly the principal one. Yet, simple as it is, such natural law of architectural composition has been sadly violated in what has the stereotyped reputation of being one of the finest porticoes in London, namely, that of St. Martin's, where the middle door is made to appear actually insignificant and depressed in comparison with the other two; for being arched, yet not rising at all higher than them, it shows as positively lower, which has a highly disagreeable effect.

From fig. 8, plate 24, may be seen how a composition for a doorway may be extended beyond the aperture, so that in case of there being three doors within a portico, all of the same size, the two side ones need have only architrave dressings, while the other would be sufficiently distinguished by greatly augmented decoration. That idea leads to many others, one of them being that a similar mode of treatment might occasionally be adopted for the purpose of distinguishing a central window in an astylar façade.

In interior design very much indeed depends upon doors, first upon their position in rooms, next upon their material, the style of their panelling and other ornamentation. In fact, doors become almost a special branch of study for those who are employed upon palatial mansions. There is this great difference between a door and a window, that whereas in the latter architectural design is confined to the dressings of the aperture, in the former it extends to the surface that closes up the aperture, or the door itself, where infinite diversity of design and decoration presents itself. What is first to be thought of is the scheme of the panelling, with respect to which Schinkel appears to have been content with a single pattern for it. Where the walls are of sufficient thickness, as in a mansion they ought to be, to admit of double doors between adjoining rooms, besides being in itself a luxury, that allows the doors in one room to be quite differently designed from those in the next one. Another advantage attending thick walls is that where a false door would else be necessary in order to balance another, they render it practicable to have a real one, though it might open only to a mere book-closet. Or should that not be practicable, there is a different expedient for

keeping up the general symmetry of a room by filling in the door-case within plates of looking-glass, thereby producing the appearance of an open doorway. This is mentioned for the consolation of those tender consciences who are, or affect to be shocked at all such innocent artifices in design as sham doors and windows, as if they were no better than so many wicked "lies" perpetrated for fraudulent and immoral purposes, though in the meanwhile their own over-acted morality may be the greatest sham of all.

It ought to be hardly necessary to say that at the end of gallery or other long room the door should be placed centrically; nevertheless, obvious as it is, that rule or principle rather, has sometimes been grossly violated, even where there has been no excuse for it. However formidable difficulties of plan may be, it is in the power of artistic contrivance to overcome them. It is impossible to prescribe beforehand for every case, and without seeing the actual patient, or in other words, the *plan*. All that can here be done is to offer one or two general maxims. Doors ought to be in some degree proportioned to the size of the rooms. Unless it can be placed centrically as an architectural feature, a large door causes a moderate-sized room to appear much smaller than it otherwise would; and if a door must, out of downright necessity, be so placed as to cut up symmetry altogether, the only next best thing to be done is to make it as little observable as possible.

Although there is ample precedent for them, it is not altogether without reason that pediments over doors within a building, or even within a portico, are considered objectionable. Such application is not only doing away with a distinction that ought to be observed between exterior and interior design, but it further does away with the opportunity of increasing such very desirable distinction by some fresher and more appropriate mode of decoration with which to surmount the cornice of an inner door. What, among other things, suggests itself for the purpose is a finial of scroll-work, somewhat analogous to that on the face of a Greek antefixa, and then perhaps spreading out below to the extremities of the cornice. Should there, in addition to other dressings, be columns to an internal doorway, they also afford the architect who is capable of taking advantage of it a fair opportunity of producing something more than a mere copy of any one standard example of an established order; and as columns so applied are of only comparatively small dimensions, and are subjected to the closest inspection, they seem naturally to require a far greater degree of highly-wrought detail and elaboration than do those of an external order upon a greatly larger scale. In fact, there ought to be a decided difference observed between an external order and internal columns. The severity becoming the former is rather out of place in rooms where all besides bespeaks the latitudinarianism of modern decoration. To speak of the inexhaustible diversity of design obtainable not only from the ornamentation of *doorways*, but from that of the *doors* themselves, would greatly exceed the limits of a note. Internal doors afford ample opportunity of producing artistic effects, not only by the scheme of their panelling, but by the filling in of the panels, accordingly as it may be of the same or a different material from that of the doors themselves. Of course, the doors in a room ought to be in keeping with its destination, and appropriate to the character of the room. What would show as frivolous taste in a library or dining-room may not be out of place in a drawing-room or ball-room. There, doors panelled with velvet, or scagliola, or buhl, or looking-glass, or with tapestry, or with open metal-work, whether gilt or not, before looking-glass, would not be out of character. In such rooms the doors may properly enough be further ornamented by studs either in metal or cut glass. To advert to one quite recent example, Cockerell's brass doors in St. George's Hall, Liverpool, deserve infinitely more attention than they have yet obtained.

Of doors themselves, and the various modes of panelling, Chambers gives no examples; and his rules for the proportions and decoration of doorways may be thought too minute and methodical; but as himself observes (p. 264), from the designs shown, "every man may invent a variety of others;" which remark, by the by, he applies to many other of his teachings.

From Donaldson's two publications, the one on Ancient, the other on Modern Doorways, the thoughtful student may derive much instructive information. The Portone, at Loreto, which would be remarkable if only for its loftiness, is a perfect *chef-d'œuvre* of artistic design stamped, by energy and grace, and by a most felicitous combination of simplicity with richness.—[W. H. L.]

OF WINDOWS.

The first considerations with respect to windows are their number and their size; which must be such as neither to admit more nor less light than is requisite.

In the determination of this object regard must be had to the climate, the aspect, the extent and elevation of the place to be lit, to its destination, and, in a certain degree, to the thickness of the walls in which the windows are made; as on that circumstance in some measure depends the greater or less quantity of light admitted through the same space. In hot countries, where the sun is seldom clouded, and where its rays dart more intensely upon the earth, the light is stronger than in those which are temperate or cold; therefore, a smaller quantity of it will suffice, and more than sufficient should not be admitted, as the consequence is the admission of heat likewise. The same is the case with a southern aspect, which receives more heat, and consequently more light, than a northern, or even an eastern or western one. A large lofty space requires a greater quantity of lighting than one circumscribed in its dimensions; and art demands that the quantity introduced should be regulated so as to excite gay, cheerful, solemn, or gloomy sensations in the mind of the spectator, according to the nature and purposes for which the structure is intended.

Wherever sunshine predominates, light must be admitted and distributed with caution, for when there is an excess, its constant attendant, heat, becomes insufferably incommodious to the inhabitant. In Italy, and some other hot countries, although the windows be less in general than ours, their apartments cannot be made habitable but by keeping the window shutters almost closed while the sun appears above the horizon. But in regions where gloom and clouds prevail eight months of the year, it will always be right to admit a sufficiency of light for these melancholy seasons, and have recourse to blinds or shutters, whenever the appearance of the sun renders it too abundant.

Palladio, in the twenty-fifth chapter of his first book, observes, that no certain determinate rule can be established concerning the height and width of the apertures of windows; but that to him it appeared proper, in conformity to the

doctrine of Vitruvius, l. 4, c. vi. to divide the space between the floor and ceiling into three parts and a half, and give to the height of the window two of these parts, and to its width one of them, less one-sixth. In another part of the same chapter he says, the windows should not be wider than one-quarter of the width of the room, nor narrower than one-fifth; and that their height should be double their width, more one-sixth; but as in every house, says he, there are large, middling, and small rooms, "and it is yet necessary to keep all the windows on the same levels of the same form, I prefer those rooms for determining their measure, of which the length is to the width as five to three: thus, when the width of the room is eighteen feet, and the length thirty, I divide the width into four parts and a half, giving one of these parts to the width of each window; to its height two of them, more one-sixth; and make all the other windows on the same floor of the same dimensions."

This last rule, which neither determines the number of windows, the height of the room, nor the side on which the light is to be admitted, is surely too vague, and subject to error: I have somewhere seen a better rule, but cannot remember where.* To the best of my recollection, it proportions the quantity of light to be thrown in, to the number of square feet contained on

* It is probable the author alluded to was James Morris, who published "Lectures on Architecture, consisting of Rules founded upon Harmonic and Arithmetical Proportions in Buildings," 8vo. Lond. 1734. As the book is not very common, I have extracted the parts to which I think Sir W. C. alludes. At page 109 the author says—

"Let the magnitude of the room be given, and one of those proportions (harmonic) I have proposed to be made use of, or any other; multiply the length and breadth of the room together, and that product multiply by the height, and the square root of that sum will be the area or superficial content in feet, &c., of the light required. Example—Suppose a room, whose magnitude is the arithmetical proportion of 5, 4, and 3, and is 20 feet long, 16 feet broad, and 12 feet high, the cube or product of its length, breadth and height multiplied together is 3840, the square root of which sum is 62 feet; if the height of the story is 12 feet, as is before mentioned, divide that 62 feet into three windows, each window will contain 20 feet 8 inches of superficial light, and those will be found to be 3 feet 2 inches and one-half broad, and 6 feet 5 inches high." Page 109, "If you extend the rule to larger rooms, the same methods will be preserved, even if their height be continued through two stories; if the upper windows be made square and to have two tire (tiers) of windows. Let us suppose the room with two tire of windows in height to be 50 feet long, 40 feet wide, and 30 feet high, the arithmetical proportion of 5, 4, and 3, the product of those numbers multiplied together will be 60,000, the square root of which sum is 245 superficial feet; divide that sum for the tire of windows into three parts, or take one-third of it, and that makes the attic or square window 81 foot 8 inches superficial light; divide this into five windows, and they are four feet and half an inch square, and the five lower windows consisting of 163 feet 4 inches superficial light, being what remains out of the 245 feet the root, each of these windows is 4 feet half an inch by 8 foot 1 inch, or two diameters, which 245 feet, the whole sum of the square root of the room, will sufficiently illuminate the same."

For the regular distribution of the piers, some useful formulæ will be found in the ΟΙΚΙΔΙΑ, or Nutshells—a book which has already been noticed at the foot of page 73.—[Ed.]

the plan of the room, by which method, supposing due attention given to the height and depth of the room, something more certain may be attained than by that of Palladio.

In the course of my own practice I have generally added the depth and the height of the rooms on the principal floor together, and taken one-eighth part thereof for the width of the window; a rule to which there are but few objections; admitting somewhat more light than Palladio's, it is, I apprehend, fitter for our climate than his rule would be.

Here, in England, our apartments are seldom made so lofty as in Italy, those of our smaller dwelling-houses often do not exceed ten feet, and are seldom higher than twelve or fourteen. In such, the windows may be from three to four feet wide, and in the rooms on the upper floor double, or somewhat more than double of that in height, by which means, when the window sill is placed at a proper distance from the floor for a grown person to lean upon, the aperture will rise to within eighteen inches or two feet of the ceiling, and leave sufficient space above it for the cornice of the room, and the architrave or mouldings which surround the window. But in more considerable houses, where the apartments are large, and run from sixteen to twenty feet high, or sometimes more, the windows should never be narrower than four feet; they often require to be made four and a half, sometimes even five, or five and a half feet wide, and high in proportion. These dimensions are sufficient for dwelling-houses of any size in this country; when they are larger, they admit too much of the cold air in winter, and are troublesome to manage; but churches, banqueting rooms, or other buildings of a public nature, may have much larger windows, and proportioned to the architecture of which such structures are composed, the parts whereof are generally large.

With regard to the beauty of exterior decorations, if an order comprehends two stories, the apertures of the windows with which it is accompanied should not much exceed three modules in width, but when it contains only one story, their width may be four and a half or even five modules. Windows contained in arches may have from two-fifths to three-sevenths of the arch in width, and their height must be such that the last horizontal moulding of their cornice may answer to the top of the impost of the arch, the whole pediment being contained in the circular part. The pediment must be triangular, for curves above each other, unless they be similar and parallel, do not succeed.

The proportions of the apertures of windows depend upon their situation; their width in all the stories must be the same, but the different heights of

the apartments make it necessary to vary the heights of the windows likewise.

In the principal floor it may be from two and one-eighth of the width to two and one-third, according as the rooms have more or less elevation; but in the ground floor, where the apartments are usually somewhat lower, the apertures of the windows should seldom exceed a double square; and when they are in a rustic basement, they are frequently made much lower. The windows of the second floor may be, in height, from one and a half of their width to one and four-fifths, and those of attics or mezzanines, either a perfect square or somewhat lower. The character of the order in which the windows are employed, and that of the profiles with which they are enriched, must, likewise, in some measure be consulted, and the apertures be made more or less elevated as the order of the whole decoration, or of the window itself, is more or less delicate.

The windows of the principal floor are generally most enriched. The simplest method of adorning them is with an architrave surrounding the aperture, covered with a frieze and cornice suited thereto; but when the aperture is remarkably high with respect to its width, it becomes necessary to spread the ornaments on the sides thereof, by flanking the architrave with columns, pilasters, or consoles, in order to give the whole composition an agreeable proportion. The windows of the ground floor are sometimes left entirely plain, without any ornament whatever; at other times they are surrounded with an architrave, or with rustics, or have a regular architrave crowned with its frieze and cornice. Those of the second floor have generally an architrave carried entirely round the aperture; and the same is the method of adorning attic or mezzanine windows; but these last two have seldom or ever either frieze or cornice, whereas the second floor windows, whenever their aperture approaches a double square, are often adorned with both—as at the Banqueting-House, and in many other buildings of note.

The sills of all the windows on the same floor should be on the same level, and raised above the floor, from two feet nine inches to three feet at the very most. When the walls are thick they should be reduced under the apertures of the windows for the convenience of looking out, and seats may be contrived to fit these recesses, as is the custom in many of our modern English houses. In France, and now too often here, the windows are carried quite down to the floor, which, when the building is surrounded with gardens or other beautiful prospects, renders the apartments exceedingly pleasant in summer, but then they become exceedingly cold in winter; and the ironwork,

which in France, and latterly very much here, is placed on the outside, by way of fence against accidents, ought never to have place where regular architecture is intended, for all the gilding and flourishing in the world can never make it tolerably accordant with the rest of the composition.

In regular built houses the sills of the windows on the ground floor should be raised six feet above the pavement on the outside of the building, to hinder passengers from looking into the apartments; but when this cannot be done without raising the floor itself more than may be necessary, the lower parts of the windows may be furnished with blinds. The tops of the apertures of windows should never, within the apartments, be carried close up to the cornice of the room; a sufficient space ought always to be left for an architrave, or at least two or three mouldings to surround them, without crowding upon the cornice, between which and these architraves the laths whereon the curtains fasten are generally placed.

The interval between the apertures of windows depends, in a great measure, on their enrichments. The width of the aperture is the smallest distance that can be between them, and twice that width should, in dwelling-houses, be the largest; otherwise the rooms will not be sufficiently lighted, and the building will have rather the appearance of a prison than of a structure calculated for the conveniences and enjoyments of life. The purpose for which the building is intended should, as has been before observed, regulate the quantity of light to be introduced, and therefore in dwelling-houses, and all places where comfort and pleasure are the main purposes, there cannot well be too much; but in sacred structures, which should affect the mind with awe and with reverence, or in other great works where grandeur of style is aimed at, it should be cautiously and rather sparingly distributed.

The windows nearest to outward angles must be at least the width of their aperture distant from the angle, and a larger space will be still more seemly, and render the building more solid. In all the stories of the same aspect, the windows must be placed exactly one above the other, and those to the left symmetrize with those to the right, both in size, situation, number, and figure. The reasons for all these things are obvious enough, and therefore it is needless to mention them. The licentious practice of intermitting the architrave and frieze of an order, in the intervals between the columns or pilasters, to make room for windows and their enrichments, which are carried close up to the cornice, can on no account whatever be suffered in regular architecture, it being in the highest degree absurd to carry the windows above the ceiling, and great want of judgment in an architect to

intermix crowded together such a number of rich complicated parts, as are those of the entablature of the order and the entablatures of the windows. Besides, the whole beauty of the order, when so mutilated, is destroyed; its proportions and figure being entirely changed. An interruption of the whole entablature, to make room for a window, and converting it into an impost to the archivolt, as we see done on the flanks of the Mansion House, is a licence equally unpardonable. Sir Christopher Wren was extremely fond of these mutilations, and every lover of architecture, while he admires the exterior of St. Paul's, must owe him some grudge for having so unmercifully mangled many parts of the inside of that splendid structure.

The common sort of builders in this country are extremely fond of variety in the ornaments of windows, and indeed in every other part of a building, imagining, probably, that it betrays a barrenness of invention to repeat the same object frequently. There is a house near Berkeley Square with only eleven windows in the whole front, and yet they are of seven different sorts. At Ironmongers' Hall* in the City the case is the same, there being seven or eight sorts of windows in the same aspect; and the like is to be met with in many other buildings both in town and in the country.

These inventive gentlemen would do well to give their attention to some professors of the mechanic arts, who, though exercising their talents on meaner objects, are nevertheless worthy of their imitation. No tailor thinks of employing seven or eight kinds of buttons on the same coat; a cutler will not make ten different sorts of knives for the same set; and if a cabinet-maker be trusted to furnish a room, he seldom introduces more than one or two sorts of chairs. Their practice is founded on experience, the general approbation of mankind is the standard they go by.

We do not discover, either in the works of antiquity or those of the great modern architects, any traces of this childish hankering after variety. The same object is frequently by them repeated a hundred times over, and this is one of the causes of that amazing grandeur, that noble simplicity, so much to be admired in their productions.

This sameness must, however, have its limits, for when carried too far the imagination of the beholder stagnates for want of occupation. In the most admired works of architecture we find the same object generally continued throughout the same level; thus one order, and one sort of windows or niches generally reign throughout the story; but in the other stories where the eye and the imagination necessarily assume a fresh course, the decoration is altered.

* A miserable composition, erected in 1748.—[Ed.]

Scamozzi, and some other eminent architects, both in their doctrine and practice are fond of distinguishing the middle of every composition by an object different from the rest. Thus in a range of windows, the middle one is generally either Venetian or in the form of an arch, though all the rest are square. How this may affect others I do not well know, but for my own part I do not like the practice, excepting where it may be absolutely necessary. Every one from his own experience must, I think, have felt a sudden uneasiness arising on finding a stile, a ditch, or other impediment of that nature in his way; and the mind is equally disturbed when thus violently and unexpectedly interrupted in contemplating the parts of a building.

Sometimes, however, it may be necessary to increase the size, and vary the figures of the windows, either in the centre break, or in some other prominent part of a front, in order to light a saloon, a gallery, or a hall, higher than the rest of the rooms. But then it will always be advisable to repeat the same form if simple, as an arch, three, five, or more times, according to the extent of the plan, as has been done in the south front of Holkham, that so the mind may be in some degree satiated, before it is conducted to a new object.

Venetian windows, and Venetian doors too, are on some occasions necessary, particularly in small buildings, to light a hall, a vestibule, or such other rooms as cannot admit of two windows, and yet would not be sufficiently lit with one. But where they can be avoided, it is best, for the columns which separate the large interval from those on the sides form such slender partitions, that, at a distance, they are scarcely perceived, and the whole looks like a large irregular breach made in the wall.

And however advisable it may be to repeat the same form, as has above been mentioned, the repetition of these Venetian windows should always be avoided. In the north front of Holkham, there are no less than seven of them, which, added to the quantity of trifling breaks and ups and downs in the elevation, keep the spectator's eye in a perpetual dance to discover the outlines, than which nothing can be more unpleasing or destructive of effect. Indeed Mr. Kent, who was the designer of this building, though we have it published under another name, was very fond of puzzling his spectators, witness the Horse Guards, Holkham, the Treasury, and other of his works, which certainly would have added more to his fame had they been less complicated and abundant in variety.

The sashes of windows are generally made of wainscot or mahogany, and sometimes of copper or other metals. The London artificers excel in these works, they make them very neatly, and though in appearance slight,

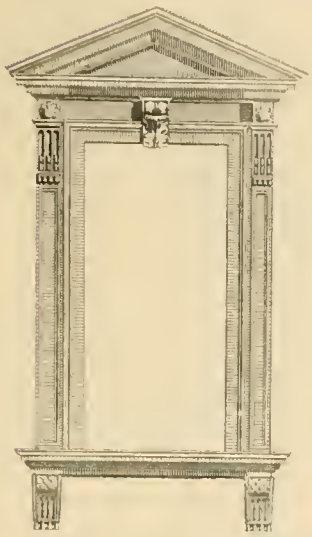
very strong. The squares of glass are proportioned to the size of the windows, there being commonly three in the width and four in the height, whatever be the dimensions of the window; each sash is composed of two equal parts, placed one above the other, and either the lowermost, or both of them, being hung on pulleys and counterpoised with weights, are moved up or down with great ease, both the cords and the weights being concealed. These are much neater, and much more convenient, than the French ones, which are composed of two vertical divisions, turn on hinges, and are shut with an apparatus of ironwork, always in the way, and weighing almost a hundred-weight. The shutters are always within the apartments wherever beauty is aimed at, those on the outside destroying the appearance of the front. They are divided into several vertical slips, folding behind each other, for the conveniency of ranging or boxing them when open, in the thickness of the wall. Each slip or fold is framed and composed of several panels, either raised or flat, surrounded with small mouldings contained in the thickness of the framing, which, when the profiles in the room are enriched, should likewise be so, at least on the fold that faces the aperture when the shutters are turned back, the front of which must stand flush with the inner edge of the architrave surrounding the window, all the other folds being ranged behind it.

In the three annexed plates of windows, I have given a great variety of designs. Fig. 1, in the first of these plates, is imitated from the lower windows of St. Peter's, composed by M. Angelo Buonaroti.* The aperture is somewhat lower than a double square in height; the architrave is one-seventh of the width of the aperture, which is likewise the breadth of the pilasters; the consoles, both at bottom and top of the window, are in length one-third of the width of the aperture; and the whole entablature is equal to one-quarter the height thereof. Fig. 2 is a composition of Bartolomeo Ammanati, executed in the ground floor of the Mattei Palace at Rome. The whole design, and particularly the lower part, is well composed, but rather approaching towards the heavy; the parts made somewhat less would succeed better, as would also a pediment instead of the sloped covering at top. Figs. 3 and 4 are both of them composed by Bernardo Buontalenti,† and executed in

* This extraordinary man, whose various and wonderful talents and genius place him on a level with the greatest characters that have ever appeared in the world, descended from an ancient but reduced family of Tuscany, was born in 1474. He died, crowned with glory, in 1564. His disinterestedness knew no bounds. He conducted the works at St. Peter's for seventeen years without salary.—[Ed.]

† Bernardo Buontalenti, a Florentine, born 1536, died 1608. He was an architect and painter of considerable celebrity. In his infancy the house in which he dwelt fell down and killed all the inmates, except Bernardo, who miraculously escaped by falling under some vaulting. On this occasion the grand duke of Florence, commiserating the situation of the orphan, provided for his education as an artist.—[Ed.]

DESIGNS FOR WINDOWS



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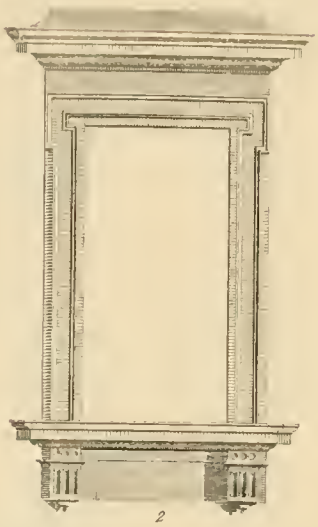

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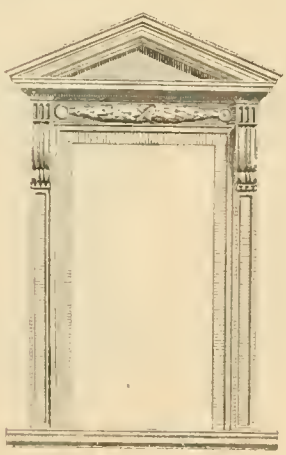

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Designs for Windows.

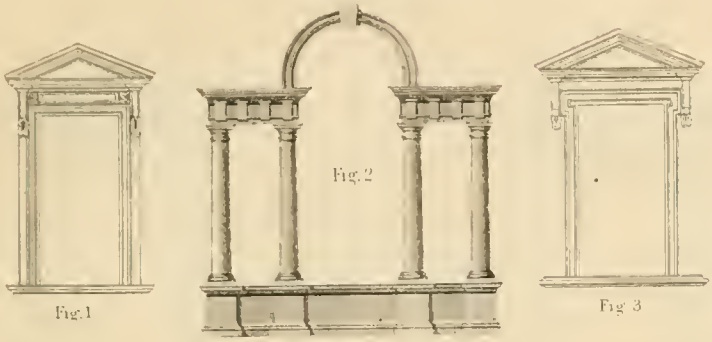

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6.

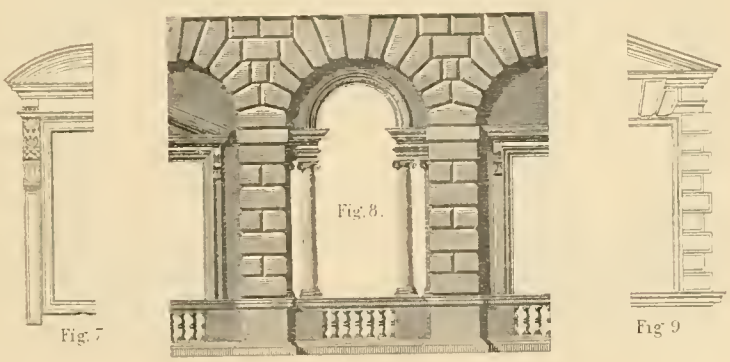

Fig. 7

Fig. 8.

Fig. 9

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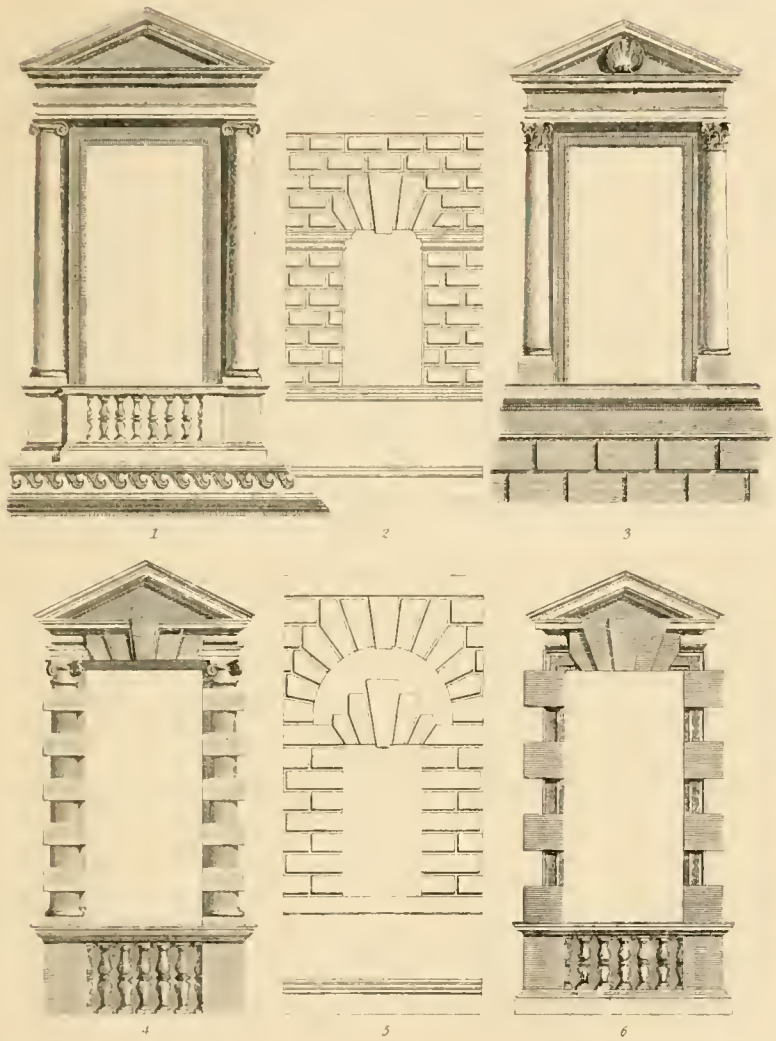
Windows



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different places. The aperture of this sort of window may be a double square, or a trifle more; the architrave from one-sixth to one-seventh of the width of the aperture, and the pilasters either the same or less by one-third, one-quarter, or one-fifth, according as the architrave is broader or narrower, there being very few cases in which both together should exceed one-third of the width of the aperture at the most. The height of the whole entablature should not exceed one-quarter of the height of the aperture, nor ever be much lower. The consoles may be equal in length to half the width of the aperture at most, and to one-third of it at the least.

In the second plate, fig. 1, is a design of P. Lescot,* abbot of Clagny, executed in the Old Louvre at Paris. The proportions may be the same, as in the two last mentioned ones. Fig. 2 is what we commonly call in England a Venetian window. It is an invention of Scamozzi. The height of the arched aperture is twice and one-half its width; those on the sides are half the width of that in the middle, and their height is regulated by the height of the columns. The breadth of the archivolt is equal to the superior diameter of the columns. Fig. 3 is a design of Palladio, executed by him in many of his buildings. The aperture is a double square, the breadth of the architrave is one-sixth of the width of the aperture, the frieze and cornice together are double the height of the architrave, and the breadth of the consoles is two-thirds of the breadth of the architrave. This sort of window succeeds much better without breaks in the architrave, which only serve to render it top-heavy, and the consoles when placed on pilasters seem more supported, and serve to give a better form to the whole than when they are only stuck on the wall. The breaks, though frequently introduced by Inigo Jones and other copyers or imitators of Palladio, are always unnatural, and can only be tolerated for the sake of variety, or with a view of spreading a composition in itself too leanly elevated. Fig. 4 is likewise a design of Palladio, executed at the Chiericato in Vicenza. Its proportions differ very little from the former; the plat-band that supports the window is equal to the breadth of the architrave. Fig. 5 is a Venetian window, invented, I believe, by Mr. Campbell. Fig. 6 is a design of Inigo Jones, executed at the Banqueting-House. I do not know exactly what proportions he has observed, having never had an opportunity of measuring the original; but the aperture may be a double square, the architrave one-sixth of the aperture's width, and the whole

* Pierre Lescot, Abbot of Clagny, was celebrated as an architect during the reigns of Francis I. and Henry II. He was a cotemporary of the famous Jean Gougeon, and the architectural part of the beautiful Fountain of the Innocents at Paris is attributed to him, as is the sculpture to Gougeon.—[Ed.]

entablature one-quarter of its height; the breadth of the consoles may be two-thirds of the breadth of the architrave. Fig. 7 is a design of M. Angelo Buonaroti, executed at the Farnese Palace in Rome. For the beautiful disposition represented in fig. 8, we are indebted to the late Mr. Kent, and it is executed, with some little difference, at the Horse Guards, in St. James's Park. Its proportions may be collected from the design. Fig. 9 is a design of Ludovico da Cigoli, and executed in the ground floor of the Rennccini Palace at Florence. In the third plate of windows, fig. 1 is imitated from a design of Raffaelle Sanzio da Urbino, executed in the principal floor of the Pandolfini Palace at Florence. The height of the aperture is a trifle more than twice its width; the architrave is equal to one-seventh of the width of the aperture; the columns are Ionic, and will succeed best if entirely detached, yet that cannot well be, excepting on a ground floor; their height is nine diameters, their distance from the architrave of the window is a quarter of a diameter, which is likewise the distance of the entablature from the top of the same architrave. The height of the whole entablature is equal to two-ninths of the column, and the height of the pediment is one-quarter of its base, or a trifle less; the pedestals and balustrades are in height one-quarter of the column and entablature taken together. Fig. 2 is an invention of Andrea Palladio, executed, with some little difference, in the Porto Barbarano Palace at Vicenza. Inigo Jones has very judiciously introduced the same design in the flanks of Greenwich Hospital, and managed all the parts of it more gracefully than in the original. Fig. 3 is imitated from the windows in the principal floor of the Bracciano Palace at Rome, designed by Bernini. Fig. 4 is an invention of Palladio, and the design here given is very accurately measured and copied from the Thiene Palace at Vicenza, in the principal floor of which it is executed. The height of the aperture is two and one-tenth of its width, the columns are Ionic, one-quarter engaged in the wall, and nine diameters high; the bottoms of the capitals are on a line with the top of the aperture, they have angular volutes, with an astragal and fillet below the volute. The bases are Tuscan; there are five rustic dies on the shaft of each column, which are all of an equal breadth; the inner sides of them are on a line with the sides of the aperture; and their projection is equal to that of the plinth of the base, which is one-fifth of a diameter of the column. The key-stones are distributed in the manner represented in the design; they incline forwards towards the top, their surface is rough, and hatched irregularly with long chops, as are likewise the dies on the columns, their angles alone being left smooth, and with a sharp outline, which roughness makes an agreeable

opposition to the smooth finishing of the other parts. The entablature is Ionic, the architrave composed of two fascias, only the frieze is swelled, and the dentil-band is placed immediately on the frieze without any moulding to support it, a singularity which Palladio has repeated in others of his designs, though it has but an indifferent effect. The pedestals and balustrade are a trifle higher than one-third of the columns; the dyes and balusters are placed immediately on the plat-band that finishes the basement, which is not so well as if there had been a base, but has been done in order to diminish the projection. This beautiful window differs considerably from the design given of it in Palladio's book, and is undoubtedly superior to it. Fig. 5 is likewise a design of Palladio, copied from the Porto Palace at Vicenza; and fig. 6 is, I believe, an original invention of Inigo Jones, which has been executed in many buildings in England.

I have given, in all, nineteen designs for windows, and for greater variety the figures 3, 4, 6, 7, 8, 9, in the plate of doors, may be employed, they being equally proper either for windows or doors.

NOTE ON WINDOWS.

Fenestration is such an important and copious subject that it would afford matter for a special treatise. It may be said to constitute one main distinction between ancient and modern Classic; for of windows very few examples at all are to be found in the monumental edifices of the ancients, which is, perhaps, rather fortunate than not, because, having no express and authoritatively accredited precedents to follow, the Revivalists were left to work out a system of fenestration by themselves, unfettered by Vitruvian rules, and some of them have shown that windows might be made most expressive and characteristic features. They are, in fact, or else might be, an almost inexhaustible source of infinitely diversified decoration. Yet, however satisfactory may be the design of the windows themselves, very much will depend upon the character of what—to coin a not unneeded or superfluous term—may be called *Interfenestration*, formed by analogy from that of intercolumniation, for as the latter refers to the spacing of columns, so does the one here proposed to the spacing of windows.

One difference to be noted between interfenestration and intercolumniation is, that whereas wide spacing is rather a defect in the latter, it is just the reverse in the other. A multiplicity of windows, especially in both directions—vertical as well as horizontal—unavoidably give a crowded and squeezed-up appearance to a front, altogether at variance with the expression of nobleness. Closely-set columns produce richness. closely-set apertures quite the contrary effect. Where apertures are in excess compared with the solids, one unsatisfactory result is the appearance of insufficient stability; besides which, in case of fire, the danger becomes all the greater. It is their largeness of interfenestration, quite independently of design, which gives such an air of aristocratic dignity to the Pall-mall Club-houses, those especially by the late Sir Charles Barry, which are eminent for a quality that cannot be counterfeited—namely, breadth and repose. Of Barry it may indeed be said that he was the first to show us what might be made of decorated fenestration. Instead of adopting ready-made window-dressings, as had been done by former architects, he not only designed them, but displayed the happiest originality. In the examples of windows shown by Chambers, in those which have columns they are mere expletives—not that such application of them is to be reprobated as faulty—but Barry greatly improved upon it by employing the columns or pilasters, as the case may be, constructively as the jambs of the window openings, so as to form its reveals. This gives an unusual degree of architectural expression and finish, because each pilaster exhibits two entire faces, and the return one shows itself from within. The windows of the Travellers'

Club-house are of this description; therefore, by referring to Plate 28, Fig. 1, showing a window from the Palazzo Pandolfini (which building Barry is said to have copied), it will be seen that the mode just described was an *invention* of Barry's own, and a singularly happy one, because, besides its propriety, it produces compactness. It must, however, be admitted that the other mode (Plate 28, Figs. 1 and 3) is not without its advantages, inasmuch as it enlarges and gives greater importance to the composition; therefore either may be the preferable one, according to circumstances. There is something no less pleasing than unusual in the example (Fig. 3) from the Palazzo Bracciano, and which is not a little suggestive also. When columns or pilasters are employed for the decoration of such apertures as either doors or windows, they may reasonably enough be treated with greater freedom of design than a large order. With respect to pediments over windows, it has been the practice of many to make them alternately pointed and curved; yet, if not to be condemned, neither is it to be recommended. Such practice was not that of either Sir William (Chambers) or Sir Charles (Barry). The former appears to have never employed the curved pediment at all, whereas the other did for all the principal floor windows of Bridgewater House, which shows what may be made of fenestration in astylar composition. Again, with respect to the distinguishing a central window from the others on the same floor, no rules can be drawn up or laid down. What suits one case is utterly unsuitable for another; nor is the impossibility of providing a special rule for each individual case to be regretted. We need not have architectural design reduced to a sort of multiplication table and the rule of three.

Besides the dressings or ornamentation of the apertures, much depends upon the mode of glazing the windows. When sashes were first introduced they were exceedingly coarse and clumsy, as may be seen by those of the Banqueting House, Whitehall, and Greenwich Hospital. We have now fallen into the contrary extreme, and because plate glass is so much cheaper than formerly, it is no unusual thing to fill each sash with a single square of it, without any vertical bars at all, but the effect is by no means the best: there is a disagreeable appearance of *emptiness*, which is none the less for the window being divided into two squares by the horizontal bar between the upper and lower sash. Certain it is that Barry did not approve such fashion, for his æsthetic feeling led him to reject it where, had he recommended them, there would have been plates of glass, whose dimensions would have almost rivalled those of—a shop window. Although it has only very seldom indeed been resorted to, *gilding* the sashes of the windows produces a most superb effect.

In his Treatise on Architecture, Hosking condemns what are called "Venetian windows" as being "radically inelegant," which is surely a hasty and ill-considered opinion. Some windows of that kind are indeed decidedly uncouth, as is the case with the one represented in Plate 27, Fig. 5; but the example just beneath it (Fig. 8), is of totally different character, and by no means deficient in elegance. When windows consist of three openings, they afford a wide scope for design both as regards the general composition, and its ornamentation, yet—and it is somewhat remarkable—they do not seem ever to have found favour with French architects, neither have they adopted the Greek Ionic capital with its charmingly and emphatically pronounced volutes. To return after this somewhat *aside* remark to the subject proper,—if in a Triple, or what here goes by the name of a Venetian, window, however unlike it may be to anything to be seen in Venice, the columns would be more effective were they three-quarter ones, and still more so were they quite insulated. No doubt, that would require greater thickness of wall; yet even that difficulty may, by a little thoughtful contrivance, be got over. Of late years the practice of arching the central opening has been abandoned, probably on account of the difficulty of satisfactorily arranging the window-curtains where the central opening is very much loftier than the two side ones. Still there are ways and means of getting over that difficulty, and far more formidable ones, by exercise of thought. To speak out frankly and freely, it is one great shortcoming of Chambers' and all similar treatises, that in speaking of windows they say nothing whatever as regards internal design and effect. Draperies are of course upholsterers' work, yet it is for the architect to consider and provide for a tasteful and convenient arrangement of the curtains if the window consists of more than one opening, or should several windows be grouped together—of which mode Barry has left a truly charming example in the south front of the Travellers' Club-house.

An altogether different method of lighting rooms from the ordinary one is that of lighting them through the ceiling by "lanterns": but lest this note should seem too long, that is left to be spoken of in another further on, upon ceilings: what may be here observed, is that the sufficiency of light will vary very much according to the particular purpose and destination of the room itself. If it be a dining-room, ball-room, or any other that is expressly prepared for evening enjoyment, sufficiency of light by day is a matter of minor consideration. In some cases it is desirable that windows should come down to the floor within, although there may be balustrades before them externally, which show not only from without but also from within. In others it is rather more desirable that the windows should be raised about some seven feet above the floor, in order to exclude "outlook," and also secure the look of greater privacy and retirement, as in a library. One no small disadvantage attending a room lighted by several thick-set windows on one of its longer sides, is that when the curtains are closed that side will overpower all the rest, and completely destroy the valuable quality of *balance*. It is possible, however, if not entirely to overcome, to greatly moderate such deformity. It can be done, and there are more ways than one, by which, if it has not yet been done, it may be accomplished. But so long as architects will not condescend to bestow any attention upon such *trifles* it will never be done at all.—[W. H. L.]

OF NICHES AND STATUES.

Architecture, as D'Aviler observes, is indebted to sculpture for a great part of its magnificence; and as the human body is justly esteemed the most perfect original, it has been customary, in all times, to enrich different parts of buildings with representations thereof. Thus the ancients adorned their temples, basilicæ, baths, theatres, and other public structures, with statues of their deities, philosophers, heroes, orators, and legislators; and the moderns still preserve the same custom, placing in their churches, palaces, houses, squares, gardens, and public walks the busts and statues of illustrious personages, or bas-reliefs and groups, composed of various figures, representing memorable occurrences, collected from the histories, fables, or traditions of particular times.

Sometimes these statues or groups are detached, raised on pedestals, and placed contiguous to the walls of buildings, by the side of flights of steps or stairs, at the angles of terraces, in the middle of rooms, or of courts and public squares; but most frequently they occupy cavities made in walls, which are called niches. Of these there are various sorts; some for the reception of statues or groups, being formed like arches in their elevation, and either semi-circular, semi-elliptical, or square in their plan; others used for the same purpose are of a parallelogramical figure both in the plan and elevation; and others, for the disposal of busts or vases, are circular or oval, square or oblong in the elevation, and either sunk squarely or spherically into the walls.

The proportion of the former sorts of these depends on the characters of the statues, or on the general form of the groups placed in them; the lowest are at least a double square in height, and the highest never exceed twice and one-half of their width. With regard to those intended for busts, they are always proportioned nearly alike, being made to fit the shape of the things placed in them, either a trifle above a square in height, or circular or oval, more or less elevated. The manner of decorating high niches, if alone in a composition, as they are in the principal front of the Old Louvre at Paris, is generally to enclose them in a decoration or panel, formed and proportioned like the aperture of a window, which is adorned in the same manner, and

bears the same proportion to the architecture they accompany as a regular window would. The niche contained in them is more or less recessed, and is carried quite to the bottom; but on the sides and at the top there is a small space left between the niche and the architrave of the panel. When niches are intermixed with windows, as they were in the front of Old Somerset House,* towards the river, and as they are at St. Paul's; they may be adorned in the same manner as the windows, provided the ornaments can be of the same figure and dimensions, but when the space between two windows is not sufficient to admit of this, it is much better to make the niches entirely plain, or surrounded only with rustics, than to contract the aperture, and by that means make the decoration narrower than those of the windows, as Inigo Jones had done at Old Somerset House, or than to adorn the niches in a different manner, as Sir Christopher Wren has at St. Paul's; for both these expedients are irregular, and occasion confusion. The tops and bottoms of these plain niches must level with the tops and bottoms of the apertures of the windows, and neither be raised above nor sunk below them, as D'Avilert teaches: for on this, and on all other occasions of the like nature, a continuity of straight horizontal lines must constantly be aimed at; it being certain, that whenever the eye of the spectator is forced to dance up and down, and hunt, if I may be allowed so to call it, for an outline, the operation is always painful, and the images raised in the mind are always confused. To this, in a great measure, may be attributed the general dislike to the Horse Guards, in St. James's Park, which is a building of so complicated a figure, both in plan and elevation, that it is impossible to form a distinct idea of the whole at once.

The same kind of plain niches may likewise be employed in narrower intercolumniations; but care must withal be taken not to squeeze them in between the columns or pilasters. And therefore, when the interval is not sufficient to afford room for a well-proportioned niche, and a space on each side between it and the columns of at least two-thirds of a module, it will be better to have no niches at all.

The size of the statue depends upon the dimensions of the niche; it should neither be so large as to seem rammed into it, as at Santa Maria

* The loss of this building is much to be regretted. It was not only perhaps the most elegant of the works of Inigo Jones, but contained fewer abuses than most of his other buildings. An elevation of part of it is given at page 177.—[Ed.]

† "Lorsque dans une Façade les Fenêstres sont assez éloignées pour avoir des niches d'une grandeur proportionnée aux Fenêstres, et quelles sont au mêsme Niveau que leurs appuis, on les peut décorer de même, et les placer dans un petit renfoncement de la grandeur des Croisées," &c. Vol. i. p. 150.—[Ed.]

Maggiore* in Rome; nor so small as to seem lost in it, as in the Pantheon, where the statues do not occupy above three-quarters of the height of the niche, and only one-half of its width. Palladio, in arched niches, makes the chin of his statues on a level with the top of the impost, so that the whole head is in the coved part. In the nave of St. Peter's, at Rome, the same proportion has been observed, and it has a very good effect. The distance between the outline of the statue and the sides of the niche should never be less than one-third of a head, nor more than one-half, whether the niche be square or arched; and when it is square, the distance from the top of the head to the soffit of the niche should not exceed the distance left on the sides. The statues are generally raised on a plinth, the height of which may be from one-third to one-half of a head; and sometimes where the niches are very large in proportion to the architecture they accompany, as is the case when an order comprehends but one story, the statues may be raised on small pedestals, by which means they may be made lower than usual, and yet fill the niche sufficiently, it being to be feared lest statues of a proper size to fill such large niches should make the columns and entablatures appear trifling. The same expedient must also be made use of whenever the statues in the niches, according to their common proportion, come considerably larger than those placed at the top of the building. A trifling disparity will not be easily perceived, on account of the distance between their respective situations; but if it be great, it must have a very bad effect, and therefore this must be well attended to and remedied, either by the above-mentioned method, or by entirely omitting statues at the top of the building, leaving the balustrade either free, or placing thereon vases, trophies, and other similar ornaments.

Some writers there are who give to these ornaments the preference at all times, alleging that it is absurd to suppose horses and men constantly standing on the roofs, or stuck up in the niches of a second or third story, in situations shocking and frightful to the imagination. De Cordemoy advises by all means to avoid placing statues too far from the ground, and Le Clerc† is for having nothing but tutelar angels on the tops of houses.

* Upon the Basilica di Sta. Maria Maggiore as many architects were employed as upon that of S. Giovanni Laterano, which has been mentioned in a preceding page. We find the following names among them—Marchione, who built in it the Cappella del Presepio; Sangallo, who restored and decorated the ceiling; Domenico Fontana, who restored the first-named chapel; Flaminio Ponzio, who built the sacristy; Girolamo Rainaldi, who designed the altar of the Cappella Paolina, and Ferdinando Fuga who designed the façade.—[Ed.]

† "Au lieu de mettre des Statues pour servir d'Amortissemens aux Etages les plus élevéz, on pourroit mettre des Vases, des Torchers, des Pots fumans, des Trophées, et semblables Ornemens qui même

To me there appears something ridiculous in this affectation of propriety, and, I believe, it may in general be established, that whenever the image is so different from the original it represents as not to leave the least probability of its being ever mistaken for the real object, this strict adherence to propriety is very superfluous.

The character of the statue should always correspond with the character of the architecture with which it is surrounded. Thus, if the order be Doric, Hercules, Jupiter, Pluto, Neptune, Mars, Esculapius, or any male figures, representing beings of a robust and grave nature, may be introduced; if Ionic, then Apollo, Bacchus, Ceres, Minerva, Mercury; and if Corinthian, Venus and the Graces, Flora, or others of a delicate kind and slender make may properly have place.

Niches being designed as repositories for statues, groups, vases, or other works of sculpture, must be contrived to set off the things they are to contain to the best advantage; and therefore no ornaments should ever be introduced within them, as is sometimes injudiciously practised; the cove of the niche being either filled with a large scallop shell, or the whole inside with various kinds of projecting rustics, with moulded compartments either raised or sunken, or composed of different coloured marbles; for all these serve to confuse the outline of the statue or group. It is even wrong to continue an impost within the niche, for that is of considerable disadvantage to the figures, which never appear so perfect as when backed and detached on a plain smooth surface. An excess of ornaments round the niche should likewise be avoided, and particularly masks, busts, boys, or any representations of the human figure, all which serve to divide the attention, and to divert it from the principal object.

The depth of the niche should always be sufficient to contain the whole statue, or whatever else it is to contain, it being very disagreeable to see statues, or any other weighty objects, with false bearings, and supported on consoles or other projections, as is sometimes done; and in the case of niches, the side views become exceedingly uncouth; for in these a leg, an arm, a head, in short, those parts alone which project beyond the niche, appear and look like so many fragments stuck irregularly in the wall.

conviendroient mieux à ces endroits, que des Figures humaines: à moins qu'elles ne representassent des Anges Tutélaires destinéz à la garde et à la conservation du Bâtiment."—Section 6. How truly absurd!—[Ed.]

NOTE ON NICHES AND STATUES.

Although it seems to have been scarcely known to the Greeks, the Niche is an exceedingly happy invention, and may be made to contribute very largely to variety in architectural composition. It would not be without its value had it no other than that of clearly expressing thickness of wall and solidity of construction. Hardly anything could have been better devised for the reception and exhibition of statues in combination with architecture than the niche; besides which, niches themselves admit of very great diversity of character: they may be plain or dressed, be either round or square-headed, and if the latter, may be either rectangular or semicircular in plan. As a niche is intended—at least looks as if it were intended—to receive something, it is, perhaps, a solecism to leave it empty, thereby letting it be seen how greatly performance had fallen short of intention. It does not, however, follow that the something must of necessity be a statue; certainly not in interior design. There niches may be tenanted either by choice and elaborately worked vases or candelabra, and if rectatangular in plan, be backed by looking-glass. In interiors very much more than has, apparently, yet been thought of, might be done by lining niches either with marble or seagliola, so as to give relief and emphasis both to them and whatever they may contain. When, as is sometimes done in rooms, a large niche, or rather niche-like recess, is carried down to the floor, its head may properly enough be coffered or otherwise enriched; as may likewise be done in other cases where the statue, or whatever else may be placed within the niche, rises no higher than the impost line. Niches are sometimes made alternately square and round-headed; or a central niche is distinguished from those on each side of it by being carried up higher, as is done in the statue-gallery at Holkham, where it produces a singularly pleasing effect.

For rooms in general niches are out of the question; but in vestibules, staircases, dining-rooms, or perhaps libraries, where the walls are neither hung nor papered, they give decided architectural expression. Should the inner walls not be sufficiently thick to admit of niches being practised in them, there is one way of getting over that difficulty by the simple expedient of cutting off the angles of the room, so as to obtain space for a niche. In a dining-room, some 25 feet by 36 feet, while the cutting off the angles would detract nothing from commodiousness, it would break up the monotonousness of rectangularity, and thereby render the room all the more striking as contrasted with the other.

With respect to Statues, amply warranted as it is by precedent, the practice of hoisting them up aloft on the summit of a building, is the reverse of commendable, for the simple reason that it is putting them where they cannot be seen at all properly. It is employing them as mere accessories, quite subordinate to the architecture, and introduced merely for the purpose of setting it off. Upon figures so preposterously placed, good design and execution would be thrown away; consequently, the making use of them, only encourages a very inferior grade of sculpture. The proper place for statues, or for other sculpture that claims to be considered more than mere decorative carving, is that where it can be distinctly seen and contemplated. Appreciatingly placed within a niche, a statue is not only framed in, but is thrown into strong relief by shadow—a very important consideration; whereas planted on the summit of a building, instead of being relieved by background, it is seen against the sky, which is no small disadvantage. Another disadvantage is that seen from a short distance off below, a statue so placed becomes foreshortened. No doubt figures so applied serve to break the sky-line, but the same number of pinnacles (of course not Gothic ones) would answer the purpose just as well, and in one respect even better, because then there would be no misapplication of statuary professing to be art, and something better than architectural garnish. Excep-

tional cases there are, in which a statue may be employed as an anthropomorphic finial, as witnesses that which crowns the pyramidical steeple of St. George's, Bloomsbury, where the single statue produces an unusually striking effect, by terminating the campanile very picturesquely, and becoming an important object.

As mere acroters for the purpose of giving some play to the sky-line, vases are preferable to statues. They are, or ought to be, and may be eumorphic objects, evidently intended like very much in every other style, chiefly for decoration, consequently with more or less of the "useless" and "unmeaning." The brummagem criticism which likens vases to tea-urns, and spires to candle extinguishers, may be despised as unworthy of serious refutation. One equally brief and intelligible rule respecting statues is to make the most of them by putting them where they can show themselves as works of art that will bear being examined. They find a very suitable place, for instance, within a portico or colonnade, where two life-size statues would tell more impressively than a score of figures twice as large exalted to such a height that nobody pays any attention to them. It has been complained that our architects do not make sufficient provision in their designs for statuary or other sculpture,—a rather unreasonable accusation, for though some have put it in, perhaps rather liberally, in their drawings, it has almost invariably been left out in the executed structure. Architects would be only too glad could they have their ideas fully carried out by the addition of the proposed complementary sculpture, without which, if it has been tastefully introduced, the building may look rather unfinished, in comparison with the original design.

Although considered as architecture, the front of the Soane Museum is poor enough in itself, the two figures before the second floor hold out a good idea for applying statues in a similar manner still lower down, as at the angles of a loggia just over the ground floor. The recesses between columns on the west side of the Bank seem to have been almost expressly intended for the reception of statues or groups. One very appropriate situation for statues is on the pedestals of a balustraded terrace, or on those of flights of steps, where they not only produce *foreground* to the building, but give life and spirit to it. Sir Gardner Wilkinson has well remarked that, notwithstanding it is sanctioned by the practice of the Greeks, the custom of putting sculpture in the tympanum of a pediment, or upon a frieze, is rather irrational. In fact, it is little less than degrading sculpture by introducing it when well designed carved ornament would produce equal effect. At the same time that a pediment is a very suitable place for sculpturesque embellishment, its form is decidedly an unfavorable one for a composition of figures, inasmuch as it invariably necessitates the same awkward and hackneyed arrangement—a tall figure in the centre, and the others lower and lower, till the last squeeze themselves, as well as they can, into the acute corners of the triangular frame. Yet that apparently insuperable disadvantage might be got over by limiting the number of figures to three, or even a single one, leaving the rest of the tympanum either plain or having some pattern worked upon it. Or the whole might be fitted up with ornament only.—[W. H. L.]

OF CHIMNEY-PIECES.

As the Egyptians, the Greeks, and the Romans, to whom architecture is so much indebted in other respects, lived in warm climates, where fires in the apartments were seldom or never necessary, they have thrown but few lights on this branch of architecture. Amongst the antiquities of Italy, I do not recollect any remains of chimney-pieces. Palladio, indeed, mentions two; the one at Baia, and the other near Civita Vecchia, which stood in the middle of the rooms, and consisted of columns supporting architraves, whereon were placed the pyramids or funnels through which the smoke was conveyed, much after the manner of the fireplace in the rotunda of Ranelagh Gardens. Scamozzi* takes notice of three sorts of chimney-pieces used in Italy in his time. One of these he calls the Roman, the aperture of which is surrounded only with a clumsy architrave; another he calls the Venetian, which is likewise adorned with an architrave, upon which are placed a frieze and cornice, and on the sides thereof are pilasters with consoles. The third sort he calls a *Padiglione.*

This last he particularly recommends where the walls are thin, it being not hollowed into the wall, as both the other sorts are, but composed of a projecting entablature, supported by consoles, termini, or caryatides, on which the pyramid is placed. This sort of chimney-piece is still very common in Italy; the Dutch are very fond of it, and we find it in many of our old English country houses. The figures 4 and 9 in plate 29, are the lower parts of two of them, designed by Palladio, and executed, the one in the Casa Trevisana, in the Island of Murano, and the other in the Valmarana Palace at Vicenza.

Neither the Italians nor the French, nor indeed any of the continental nations, have ever excelled in compositions of chimney-pieces: I believe we may justly consider Inigo Jones as the first who arrived at any great degree of perfection in this material branch of the art. Others of our English architects, have, since his time, wrought upon his ideas, or furnished good inventions of

* Parte Seconda, Lib. vi. c. 35.—[Ed.]

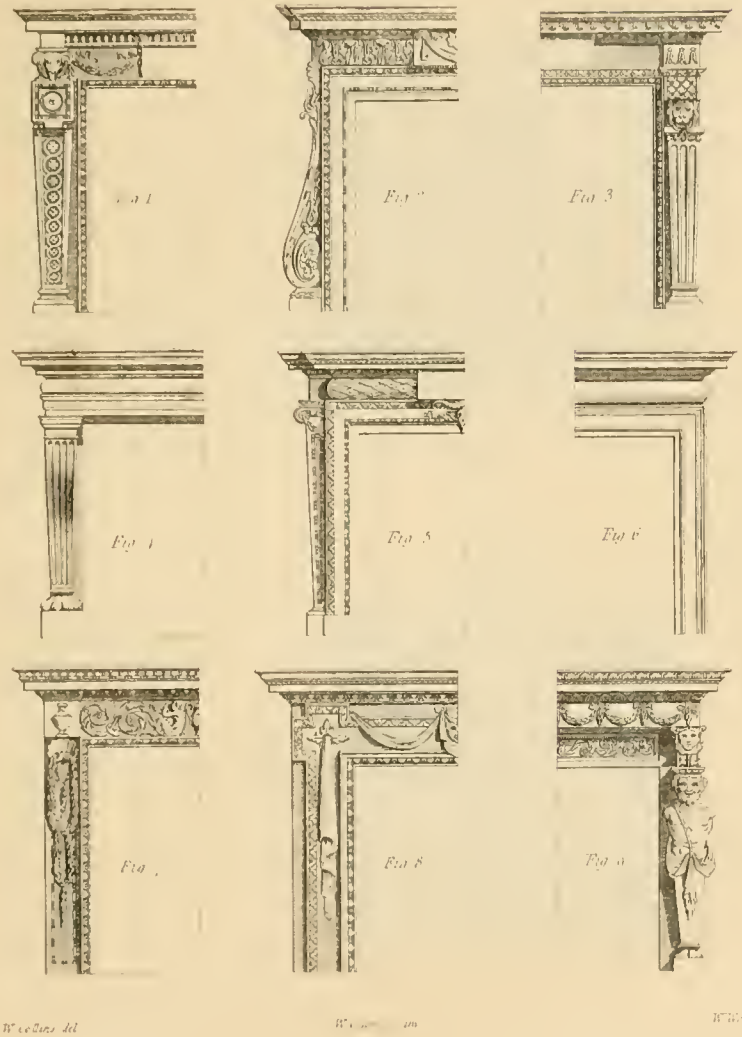
their own; and England, being at present possessed of many ingenious and very able sculptors, of whom one chief employment is to execute magnificent chimney-pieces, now happily much in vogue, it may be said that in this particular we surpass all other nations, not only in point of expense, but likewise in taste of design and excellence of workmanship. Scamozzi mentions a chimney-piece, in one of the public buildings at Venice, executed from his design, as a most uncommon piece of magnificence, having cost upwards of a thousand crowns.* In this country a much larger expense is very frequent, and many private gentlemen's houses, in most parts of England, are furnished with several chimney-pieces at least as valuable.

The size of the chimney must depend upon the dimensions of the room wherein it is placed. In the smallest apartments the width of the aperture is never made less than from three feet to three feet six inches; in rooms from twenty to twenty-four feet square, or of equal superficial dimensions, it may be four feet wide; in those of twenty-five to thirty, from four to four and a half; and in such as exceed these dimensions, the aperture may be extended to five, or five feet six inches: but should the room be extremely large, as is frequently the case of halls, galleries, and saloons, and one chimney of these last dimensions neither afford sufficient heat to warm the room, nor sufficient space round it for the company, it will be much more convenient, and far handsomer to have two chimney-pieces of a moderate size, than a single one exceedingly large, all the parts of which would appear clumsy and disproportioned to the other decorations of the room.

The chimney should always be situated so as to be immediately seen by those who enter, that they may not have the persons already in the room, who are generally seated about the fire, to search for. The middle of the side partition wall is the properest place in halls, saloons, and other rooms of passage to which the principal entrances are, commonly, in the middle of the front, or of the back wall: but in drawing rooms, dressing rooms, and the like, the middle of the back wall is the best situation, the chimney being then furthest removed from the doors of communication. The case is the same with respect to galleries and libraries, whose doors of entrance are generally either at one or at both ends. In bed chambers the chimney is always placed in the middle

* "Di nostro ordine si sono fatte Nappe di tutte le forme raccontate, e con Statue, e Fregioni, che sostengono l'ornamento di sopra, e tutte esse opere condotte di finissimi marmi bianchi, storiate, ed intagliate, e con girari di fogliami ne' Fregi, e altri Ornamenti di Cartelle, Festoni e Puttini, ne' loro Cimieri, e questi anco tocchi d'oro: e fra le altre quella del Anticolleggio della Serenissima Signoria quì in Venezia; laquale costò più di mille scudi; ma queste, e simili opere si convengono à punto à Prencipi e personaggi, e non a persone private."—Parte Second. Lib. vi. c. 35.—[Ed.]

Designs for Chimney Pieces.



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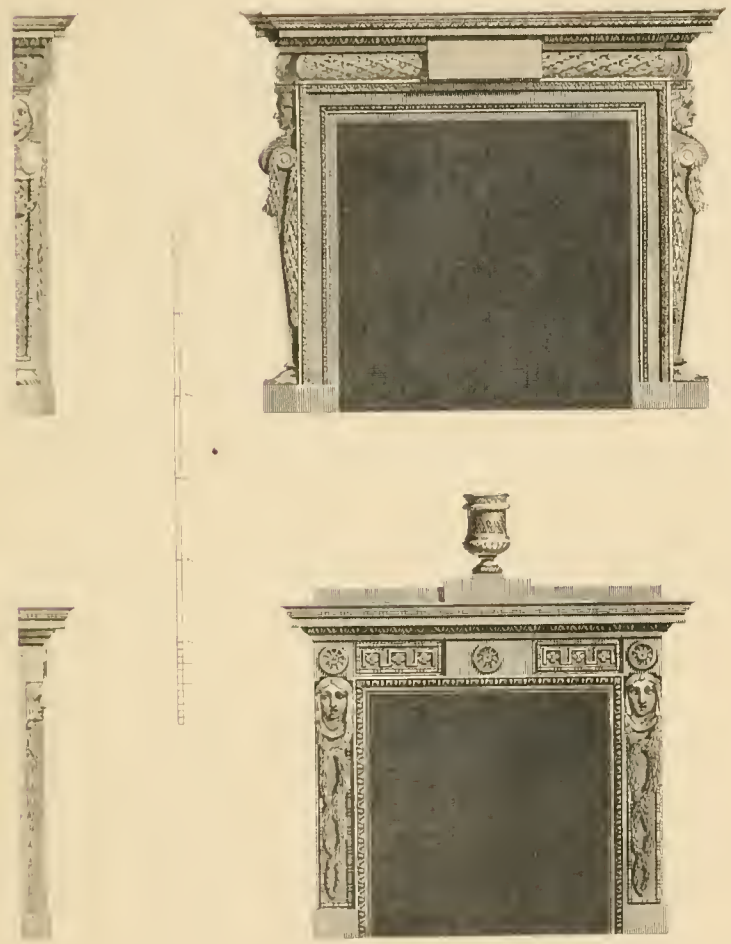
Chimney Pieces in the Lord Viscount Charlemont's Casino at Marino



W. Collins del. W. Chambers inv. C. Armstrong sc.

Published by the Proprietors of the Building News, 1860

To follow page 296.

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of one of the side partition walls, and in closets, or other very small places, it is, to save room, sometimes placed in one corner.

Whenever two chimneys are introduced in the same room, they must be regularly placed, either directly facing each other, if in different walls, or at equal distances from the centre of the wall in which they both are placed. The Italians frequently put their chimneys in the front walls, between the windows, for the benefit of looking out while sitting by the fire; but this must be avoided, for by so doing that side of the room becomes crowded with ornaments, and the other sides are left too bare; the front walls are much weakened by the funnels, and the chimney shafts at the top of the building, which must necessarily be carried higher than the ridges of the roofs, have, from their great length, a very disagreeable effect, and are very liable to be blown down.

In large buildings, where the walls are of a considerable thickness, the funnels are carried up in the thickness of the wall; but in small ones, this cannot be done: the flues and chimney-pieces must necessarily advance forward into the rooms, which, when the break is considerable, has a very bad effect; and therefore, where room can be spared, it will always be best, either in show or state apartments, to make niches or arched recesses on each side; and in lodging rooms, presses, or closets, either covered with the paper, or finished in any manner suited to the rest of the room. By these means, the cornice or entablature of the room may be carried round without breaks, the ceiling be perfectly regular, and the chimney-piece have no more apparent projection than may be necessary to give to its ornaments their proper relief.

The proportion of the apertures of chimney-pieces of a moderate size, is generally near a square; in small ones a trifle higher, and in large ones somewhat lower. Their ornaments consist of architraves, friezes, cornices, columns, pilasters, termini, caryatides, consoles, and all kinds of ornaments of sculpture, representing animal or vegetable productions of nature; likewise vases, pateræ, trophies of various kinds, and instruments or symbols of religion, arts, arms, letters, and commerce. In designing them, regard must be had to the nature of the place where they are to be employed. Such as are intended for halls, guard rooms, salons, galleries, and other considerable places, must be composed of large parts, few in number, of distinct and simple forms, and having a bold relief; but chimney-pieces for drawing rooms, dressing rooms, bed chambers, and such like, may be of a more delicate and complicated composition. The workmanship of all chimney-pieces must be perfectly well finished, like all other objects liable to a close inspection, and the ornaments, figures, and profiles, both in form, proportions, and quantity, must be suited to the other parts of

the room, and be allusive to the uses for which it is intended. All nudities and indecent representations must be avoided both in chimney-pieces and in every other ornament of apartments to which children, ladies, and other modest grave persons have constant recourse; together with all representations capable of exciting horror, grief, disgust, or any gloomy, unpleasing sensations.

Chimney-pieces are made either of stone, of marble, or of a mixture of these with wood, scagliola, ormolu, or some other unfragile substances. Those of marble are most costly, but they are also most elegant; and the only ones used in high finished apartments, where they are seen either of white or variegated marbles, sometimes inlaid and decorated with the materials just mentioned. All their ornaments, figures, or profiles are to be made of the pure white sort, but their friezes, tablets, panels, shafts of columns, and other plain parts, may be of parti-coloured marbles, such as the yellow of Siena, the brocatello of Spain, the jaspers of Sicily, and many other modern as well as antique marbles, frequently to be had in England. Festoons of flowers, trophies, and foliages, frets, and other such decorations, cut in white statuary marble, and fixed on grounds of these, have a very good effect. But there should never be above two, or at the utmost three different sorts of colours in the same chimney-piece, all brilliant and harmonizing with each other.

In the two annexed plates are eleven different designs for chimney-pieces; some of them composed by Palladio and Inigo Jones, the rest by me. Their proportions may be gathered from the designs, which are executed with tolerable accuracy. Some other chimney-pieces will be found among the designs at the end of the book.

The shafts of the chimney funnels should be regularly disposed on the roofs of buildings, and all of them be made of the same height, breadth, and figure. They are handsomest when made of stone, of a cubical figure, and finished with a light cornice, composed of few mouldings. Scamozzi recommends obelisks and vases; Serlio has given several designs for decorating the tops of funnels, which resemble towers; and Sir John Vanbrugh frequently converted his into castles; as may be seen at Blenheim, Castle Howard, and others of his numerous stately works.

Neither the Italians above cited, nor the Englishman, have been very successful in their designs; but upon the same ideas good ones might be composed, and made to terminate a structure with grace and propriety.

NOTE ON CHIMNEY-PIECES.

A few remarks on this subject will not, perhaps, be altogether superfluous. A chimney-piece ought not to be the least striking feature in a room—rather the contrary, especially in this climate where it is expressive of comfort, and should, accordingly, be rendered an attractive and cheerful-looking object. Yet, if it be made, as is sometimes done, of black or dark-colored marble, a chimney-piece shows only as a dismal blot in the room, unless blackness were to be carried out consistently by ebony doors, ebony furniture, and black velvet window curtains. Another more common, but hardly less offensive, solecism is that of putting a plain marble chimney-piece, without any carved mouldings at all, into a room that makes a pretentious show by its elaborate cornices and other stuccatura work. To bestow thoughtful design on, and to finish up, chimney-pieces is, if not a generally approved, or generally observed rule, at any rate a very sound maxim. At one time, indeed, the inconsistency used to be of an opposite sort; the opening of the fireplace being exceedingly large, and the chimney-piece an extravagantly-ambitious piled-up structure, profusely adorned with carved work, though there was scarcely any attempt at decoration elsewhere. Not only does a chimney-piece of that description look heavy and cumbrous, but it takes off from the height of a room. Yet, under particular circumstances, even what would else be a preposterously large chimney-piece may be made to accord with, and to be balanced by, some other corresponding architectural feature; as when, for instance, spacious folding-doors are at one end of a room, and the chimney-piece at the opposite one. In such case, enlargement greatly beyond what is required for, or proportioned to, a fire-place as its dressings,—departure from ordinary rules becomes allowable, and if successful, no less laudable also. So much depends upon a chimney-piece that particular attention ought to be given to it. Tasteless furniture can be changed, chimney-pieces are fixtures, and once put up must remain; even though, intended at first to be ornamental features, they come at last to be positive eyesores. The examples shown by Chambers are not now to be recommended as faultless and unimproveable.—[W. H. L.]

OF PROFILES FOR DOORS, WINDOWS, NICHES, CHIMNEY-PIECES, ETC.

When any of the above-mentioned objects are very large, the profiles of the orders are employed in their decoration; but when small, as is more frequently the case, other profiles of a less complicated figure are used. Palladio has in his first book given designs of several, three of which are exhibited in the annexed plate. Fig. 1 is the richest of the three, and very proper for windows or doors of the Corinthian order. The account given by that author of its proportions, being very tedious and somewhat confused, is here omitted. But all the operations for proportioning the different members by equal parts, are expressed on the design.

Fig. 2 may be employed in an Ionic, or rich Doric order. Its architrave is to be divided into four parts; the frieze to be made equal to three, the cornice to five of these parts. For the subdivisions see the plate, or consult Palladio's book: his whole text upon so slight a subject being too long to be inserted here.

Fig. 3 is proper in a Doric order. Its divisions are less complicated than the former two, and may easily be collected from the design.

In the beginning of this work, I have pointed out the trouble and tediousness of determining proportions by equal parts*; those who peruse the three paragraphs in Palladio's work, employed in proportioning the three cornices just mentioned, will, I think, have few doubts remaining upon that subject. And for my own part, though I see no objection to Palladio's great proportions, which are proper, in most cases, where swelled friezes are used, and the architrave of the door or window is not less, nor much exceeds, one-sixth of the width of the aperture; yet, for the parts, I venture to prefer employing the entablatures of the different orders of architecture, proportioned as they are, with the rejection of such mouldings or members as seem superfluous, and which, if introduced, would render the object confused, and, from the smallness of its dimension, too diminutive to stand a comparison with other parts of the composition.

* See page 123.—[Ed.]

Profiles for Windows Doors Niches or Chimney Pieces

Fig. 1.

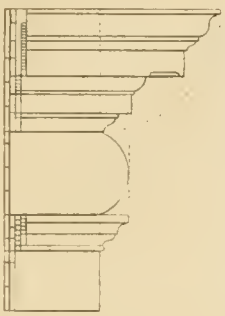


Fig. 2.

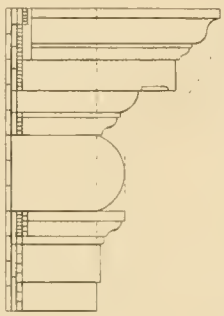


Fig. 3

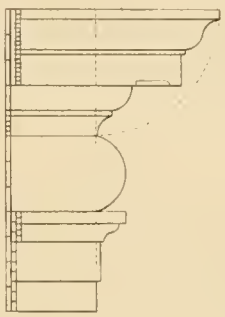


Fig. 4.

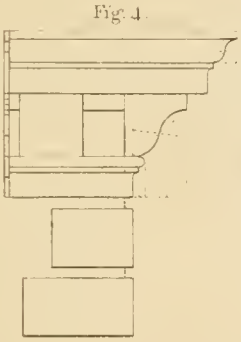


Fig. 5

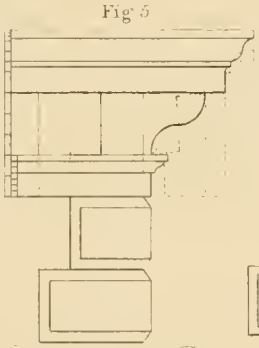
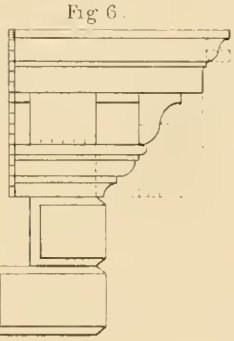


Fig 6.



Block Entablatures & Rustic Quoins.

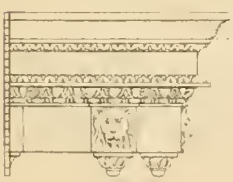


Fig. 7

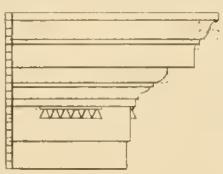


Fig. 8

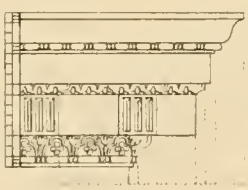


Fig 9.

Block Cornice. Architrave Cornice. Block Cornice.

W Collins del J Gandon W Lowry sc

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Thus, for instance, if the order in which the door, window, or niche is placed, be Composite or Corinthian; the Composite or Corinthian entablature may be used for their dressings, with the omission of either dentils or modillions. The Composite architrave may be used as it is, but the Corinthian should be divested of the lower fascia, with the little astragal by which it is separated from the fascia directly above it.

In the Ionic order, the Ionic entablature may on some occasions be used as it is, to dress the doors and windows, provided the dentils be not cut: but in most cases it will be properest to leave out the dentil band, with the astragal above it; and strengthen the fillet, which then will make the separation between the ovolo and the bottom moulding.

The profiles of doors, of windows, of niches, and in short the profiles of all subservient parts, must not only be less in the whole, but likewise in each particular member, than those of the orders employed in the same composition, or than the cornice or entablature, which serves as a finishing to the whole design; it being among the grossest of errors to make any ornaments belonging to the parts more predominant than those which are particularly appropriated to the embellishment of the whole mass, as Pietro da Cortona* has done at St. Carlo in the Corso at Rome, where the profiles of the great door, on the inside of the church, are considerably larger than those of the order in which that door is contained.

The usual proportion given to architraves of outside windows, niches, or doors, is from one-seventh to one-fifth of the width of the aperture. Where the architrave is supported on each side by pilasters, as is frequently the case, or where rusties are applied, it may be a seventh, and should never exceed a sixth of the width of the aperture; but whenever it is unaccompanied, it ought never to be less than one-sixth, nor should it ever exceed one-fifth thereof. If the friezes be swelled, their dimensions, as well as those of the cornices, may be determined as Palladio directs, by dividing the breadth of the architrave into four parts, and giving three of these parts to the height of the frieze, and five of them to that of the cornice; but if the frieze be flat and upright, its height must be equal to the breadth of the architrave.

The pilasters which accompany the architrave may be from one-half to two-thirds of its breadth. They commonly support consoles of various forms, equally broad with themselves, and in length generally from one-half to two-

* The celebrated painter, who was also much engaged as an Architect: he was born in 1596, and died at Rome in 1669. The designs for this church were made by Onorio Lunghi; but the finishing, and the tribune and cupola, are by Cortona.—[Ed.]

thirds of the width of the aperture. These support the corona of the cornice above, and rest below on masks, shells, leaves, bells, or drops.

In interior decorations, where the eye is nearer the objects than in exterior, everything should be more delicate, and calculated for closer inspection; the door architraves there should never exceed a sixth of the aperture, and the frieze and cornice may be proportioned to them, as is before directed.

It is not usual to employ either frieze or cornice over inside windows, as they would stand in the way of the curtains, and though the windows are in general made wider than the doors, their architraves are never made larger; on the contrary, they are often, for the advantage of having more room in the piers for large glasses, reduced to three or four mouldings, surrounding the aperture, and forming boxes for the shutters to fold into.

With respect to chimney-pieces, they are of such various compositions, and so great a latitude is allowed the composer, that little can be determined concerning them. In general, their architraves should not be less than one-sixth, nor exceed one-fifth of the aperture's width; their friezes may be from two-thirds to three-fourths of the architrave, and their cornices should seldom or never be higher than the frieze, but on most occasions somewhat lower, since when they are large and project much, they become inconvenient, and dangerous to the heads of the company.

OF BLOCK CORNICES AND EXTRANEOUS ENTABLATURES.

Block cornices and entablatures are frequently used to finish plain buildings, where none of the regular orders have been employed. Of this kind there is a very beautiful one composed by Vignola, much used in Italy, and employed by Sir Christopher Wren to finish the second order of St. Paul's. I have given a design of it in the second plate of the Composite order, with the measures of all its parts, determined, according to Vignola's method, by a module divided into eighteen minutes. When this entablature is used to finish a plain building, the whole height is found by dividing the height of the whole front into eleven parts, one of which must be given to the entablature, and the remaining ten to the rest of the front. And when it is employed to finish an order, which, however, may as well be let alone, it must be somewhat less in proportion to the columns than a regular entablature would be, because its parts are larger. The angles of the building, where this entablature is used, may be adorned with quoins; the short ones about a module long, and the long ones a module and a half, the height of each being about three quarters of a module, including the joint.

Among the profiles for windows, &c., there are three other block entablatures of a simpler make; the second of which Palladio has executed in a couple of houses: the one at Vivaro, and the other at Monteccio, villages of the Vicentine. The other two are not very different from that; the measures of all of them are taken from Mr. Gibbs's rules, and may easily be collected from the designs. These entablatures need not exceed one-thirteenth of the whole height of the front, nor should they ever be much less than one-fifteenth. Figs. 7 and 9 in the same plate are two block cornices, the former of which is executed in a palace at Milan, and the other by Raffaelle, at a house in the Lungara at Rome; the height of these need never exceed one-sixteenth part of the whole front, nor should it be less than one-eighteenth. Fig. 8 is an

architrave cornice, which M. Angelo, Baldassare Peruzzi,* and Palladio, have employed in some of their compositions. This kind of profile is a proper finishing for columns supporting the archivolts of arches, as it approaches nearer the proportion of an impost than a regular entablature would; its height may be one-eighth of the height of the column.

* Baldassare Peruzzi, an architect and painter, born at Volterra in 1481, died 1556. He was employed at Rome by Julius II. and Leo X., by the latter as one of the architects of St. Peter's.—[Ed.]

NOTE ON CORNICES AND QUOINS.

The architects of the Vitruvio-Palladian school appear to have thought that little could be done without an order, either of columns or pilasters, and had no idea of how much may be accomplished in *astylar* composition, by drawing freely upon the other resources of decorative design. Nothing sets off a building so much as a bold and even energetically expressed cornice for its crowning and completing member, or rather its salient and not least characteristic feature; yet during our so-called Greek mania, cornices were reduced to little more than shelf-like projections, without any display of bed-mouldings, or other ornamentation to make amends for the (trifling) omission of the bossy, sculptured frieze below it.

It was reserved for Barry to be the first to adopt and introduce among us the Italian cornicione, and a great deal more besides, in all which he might easily enough have been anticipated by others, which is to be accounted for only by their just happening not to see or think of what he did.

Rustic quoins—another Italian invention—contribute greatly to finish; for besides indicating increased strength, and keeping up ornateness at the extremities of a façade, they define its termination very forcibly and unmistakably. Quoins and cornicione together serve to accentuate termination, both vertically and horizontally, and distinctly frame in the rest of the composition. Quoins themselves admit of considerable diversity of character, and consequently of combination also. Their joints may be moulded or not, their faces may be either smooth or tooled, and both modes may be applied together by the tooled and the smooth quoins being placed alternately, not to mention other diversities.

Enriched string-courses again, are a source of appropriate and varied embellishment. Ornateness should ever be carried out consistently. Even in the absence of rules altogether, artistic instinct ought to make the architect, if artist at all, to *feel* that. No doubt such wholesome principle has been ignored by those whose names have awed what ought to be all the more vigorously exacting criticism, into the hypocrisy of simulated admiration.—[W. H. L.]

OF THE PROPORTIONS OF ROOMS.

The proportions of rooms depend, in a great measure, on their use and actual dimensions; but, with regard to beauty, all figures, from a square to a sesquialteral, may be employed for the plan. Inigo Jones, and other great architects, have sometimes even exceeded this proportion, and extended the plan to a double square; but the great disparity between the width and length of this figure, renders it impossible to suit the height to both: the end views will appear too high, and the side ones too low.

It may perhaps to some appear absurd to make this objection, when galleries are frequently three, four, or five times as long as they are wide; but it must be observed, that, in this case, the extraordinary length renders it impossible for the eye to take in the whole extent at once, and therefore the comparison between the height and length can never be made.

The heights of rooms depend upon their figure: flat ceiled ones may be lower than those that are coved. If their plan be a square, their height should not exceed five-sixths of the side, nor be less than four-fifths; and when it is an oblong, their height may be equal to their width. But coved rooms, if square, must be as high as broad, and when oblong, their height may be equal to their width; more one-fifth, one-quarter, or even one-third, of the difference between the length and width; and galleries should, at the very least, be in height one and one-third of their width, and at the most, one and a half, or one and three-fifths. These proportions are all perfectly good, as they obviate any idea of confinement, and, at the same time, render it practicable for those who are in the room to examine the figure and ornaments of the ceiling, without either pain or difficulty.

It is not, however, always possible to observe exactly these proportions. In dwelling-houses, the height of all the rooms on the same floor is generally the same, though their extent be different; which renders it extremely difficult in large buildings, where there are a great number of different-sized rooms, to proportion all of them well. The usual method, in buildings where beauty and magnificence are preferred to economy, is to raise the halls, saloons, and galleries, higher than the other rooms, by making them occupy two stories: to make the

drawing-rooms, or other largest rooms, with flat ceilings; to cove the middle-sized ones a third, a quarter, or fifth of their height, according as it is more or less excessive; and in the smallest apartments, where even the highest coves are not sufficient to render the proportion tolerable, it is usual to contrive mezzanines above them, which afford servants' lodging-rooms, baths, powdering-rooms, wardrobes, and the like; so much the more convenient, as they are near the state apartments, and of private access. The Earl of Leicester's house at Holkham is a master-piece in this respect, as well as in many others: the distribution of the plan in particular deserves much commendation, and does great credit to the memory of Mr. Kent; it being exceedingly well contrived, both for state and convenience. And, with regard to the whole interior decoration, it may certainly vie, in point either of magnificence or taste, with anything now subsistent in England.

Since writing the above, thirty years have elapsed *; and a very different style of decoration has been introduced, which, for richness and neatness of execution, far surpasses anything done at that time. The executive powers of our workmen are certainly much improved; yet it is far from certain that the taste is better now than it was then. That style, though somewhat heavy, was great, calculated to strike at the instant; and although the ornaments were neither so varied nor so numerous as now, they had a more powerful effect, because more boldly marked, less complicated in their forms, and less profusely applied. They were easily perceptible without a microscope, and could not be mistaken for filigrane toy-work. Content with the stores which the refined ages of antiquity had left them, the architects of that day ransacked not the works of barbarous times, nor the portfolios of whimsical composers, for boyish conceits and triflingly complicated ornaments.

The coldness of our English climate, and the frugality of those who build, are strong objections to high rooms; so that we frequently see the most magnificent apartments, not above fifteen, sixteen, or at most eighteen feet high, though the extent of the rooms would require a much more considerable elevation. This practice is, however, not to be imitated, where beauty or effect is aimed at. There are many good expedients for warming rooms, however spacious or lofty; and to consider expense in that particular alone, is an ill judged piece of parsimony, as it renders all other expense employed in the decoration of the room ineffectual.

When rooms are adorned with an entire order, the entablature should never exceed one-sixth of the whole height, nor be much less than one-

* The period between the first and third editions.—[Ed.]

seventh in flat-ceiled rooms; and one sixth or seventh of the upright part in such as are coved. And when there are neither columns nor pilasters in the decoration, but an entablature alone, its height should not be above one-seventh or eighth of those heights. If rooms are finished with a simple cornice, it ought never to exceed one-fifteenth, nor ever be less than one-twentieth part of the above-mentioned heights; and when there is a frieze added to the cornice, with an astragal or other mouldings under it, as is sometimes customary, the whole height of these, together with the cornice, should never exceed one-eighth of the upright height of the room. In general, all profiles within a building must be more delicate than those on the outside; the architraves of the doors and windows should never exceed one-sixth of the breadth of the aperture, on most occasions one-seventh will be sufficient, and all other parts must be diminished proportionably.

NOTE ON PROPORTIONS OF ROOMS.

Among those matters for which no express rules can be laid down, or if laid down be adhered to; nor is it desirable that they should be, for, as Mr. S. Smirke observed in one of his lectures, very differently proportioned rooms may in themselves be equally pleasing and equally striking and effective. To establish a fixed, immutable standard of proportions, is only to cut off from the architect what ought to be a never-failing source of variety. Another source of varied design there is, which because advantage can be taken of it only in exceptional cases, is ignored in architectural teachings; that, namely, which is derived from, not the proportions only, but the forms of rooms, and the breaking up that monotonous rectangularity of which Milizia complains. Deviation from rectangularity, both horizontally and vertically, that is, as regards not only plan but section, is not to be looked for even in first-rate town houses; yet ought to be looked for, and also a good deal more besides, in palatial mansions, erected seemingly with far less regard to money expenditure than to æsthetic effect, although the latter ought to be, when a man is building, if not the chief, a leading consideration, for in all that is, or professes to be, art, effect, however it may be named, is of paramount value. It is that which not only vivifies, but irradiates what, but for its magic touch, would else be little better than respectable common-place mediocrity and dulness.—[W. H. L.]

OF CEILINGS.

Ceilings are either flat, or coved in different manners. The simplest of the flat kind are those adorned with large compartments, either let into the ceiling or flush with its surface, and surrounded with one or several mouldings, as represented in the first, second, and tenth figures of the first plate of ceilings: and when some of the mouldings which surround the compartments are enriched, and some of the compartments adorned with well-executed foliages, or other stucco or painted ornaments, such ceilings have a very good effect; they are very proper for common dwelling-houses, and for all low apartments. Their ornaments and mouldings do not require a bold relief, but being near the eye they must be finished with taste and neatness. For higher rooms, the kind of flat ceilings represented in the third, fourth, seventh, and eighth figures of the same plate, and in one of the figures of the second plate, are more proper, as they have a much bolder relief. The use of these is frequent both in Italy and England. They seem to be composed of various beams, framed into each other, and forming compartments of different geometrical figures. The designs which I have given, are all for square ceilings; but oblong, or those of any other form, may be comparted in the same manner, the figures of the compartments being varied according to the fancy of the composer, and made either polygonal, circular, or elliptical. The sides of the beams forming these compartments are generally adorned with mouldings, and represent either a simple architrave, or an architrave cornice, according to the size of the compartments and the height of the room. Sometimes the larger compartments are deeper than the small ones with which they are accompanied, and surrounded with a fuller profile, as in the flat ceiling of the second plate, which is a design of Baldassare Peruzzi, executed in the vestibule of the Massimi Palace at Rome. The soffits of the beams are seldom left plain, but are adorned with *Guilloches* or frets of various kinds, of which I have given a good number of designs, in the first and second plates of ceilings; and when the utmost degree of richness in the decoration is aimed at, the ground of the compartments is likewise adorned, either with paintings, or with bassi-relievi representing grotesque figures,

foliages, festoons, tripods, vases, and the like, of which there are some designs in the first plate of ceilings.

Coved ceilings are more expensive than flat ones, but they are likewise more beautiful, susceptible of a greater variety of decorations, and in general more splendid. They are promiscuously employed in large or small rooms, and occupy from one-fifth to one-third of the height of the room, according as that height is more or less considerable. If the room is low in proportion to its width, the cove must likewise be low; and when it is high the cove must likewise be so; by which means the excess of height will be rendered less perceptible. But where the architect is at liberty to proportion the height of the room to its superficial dimensions, the most eligible proportion for the cove is one-quarter of the whole height. In parallelogram-figured rooms, the middle of the ceiling is generally formed into a large flat panel, as in the fifth and sixth figures of the first plate of ceilings, which is either left plain or painted, adorned with coffers and roses, or compartments, or with grotesque ornaments, according as the decoration is to be rich or simple. This panel, with the border that surrounds it, may occupy from one-half to three-fifths of the breadth of the room. The form of the cove is generally either a quadrant of a circle, or of an ellipsis, taking its rise a little above the cornice, and finishing at the border surrounding the great centre panel, that so the whole curve may be seen from the end of the room. This border is made to project somewhat beyond the cove on the outside, and on the side towards the panel, it is usually made of a sufficient depth to admit the profile of an architrave, or of an architrave cornice.

The coved part of the ceiling may either be left plain, as in one of the above-mentioned designs, or adorned as in the other, either in the manner there represented, or in any other of the same kind, or else with coffers of different polygonal figures, of which there is a great variety in the third plate of ceilings, very proper both for this purpose and likewise to adorn flat ceilings.

In England, circular rooms are not much in use, but they are nevertheless very beautiful. Their height must be the same as that of square rooms; their ceilings may be flat, but they are handsomer when coved, or of a concave form, whether of a semi-circular or semi-elliptical profile. In the fourth plate of ceilings, I have given five different designs for them, composed by M. Angelo, Bartolomeo Ammanati, Baldassare Peruzzi, and Algardi *; they are

* Alessandro Algardi, a painter and sculptor of Bologna.—He studied under Ludovico Caracci, and died at Rome in 1645.—[Ed.]

executed in the Capitol, the Mattei Palace, and the Villa Pamfili at Rome. Most sorts of compartments and coffers are likewise very proper for these circular coves, as well as for coves of octagonal or other polygonal plans.

Arcs Doubleaux, or, as Mr. Gibbs calls them, soffits of arches, are frequently enriched. When narrow, their ornaments consist of *Guilloches* or frets; but when broad, they are adorned in a variety of different manners. I have given several designs of them composed by Raffaelle, Ammanati, and M. Angelo, which are executed at St. Peter's, at the Palazzo Mattei, and the Villa Madama near Rome.

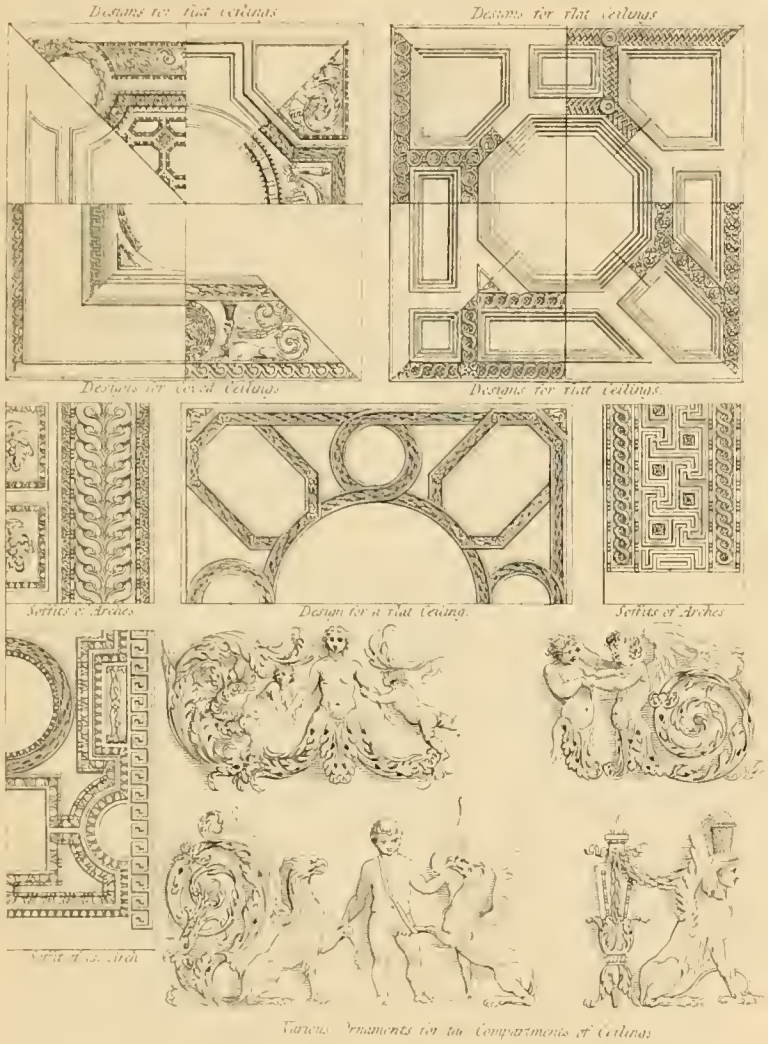
When the profiles or other parts of a room are gilt, the ceiling must likewise be so, and that full as profusely as the rest. The usual method here is to gild all the ornaments, and to leave the grounds white, pearl, straw colour, light blue, or of any other tint proper to set off the gilding and ornaments to the best advantage; but I have frequently seen that practice reversed with more success, by gilding the grounds, and leaving the foliages white, parti-coloured, or streaked with gold.

It requires much judgment to distribute either gold or colours properly. Great care must be taken not to leave some places dull or bare, while others are so much covered that they appear like lumps of gold, or beds of gaudy flowers: in general, it is to be observed, that wherever the gilding or colouring tends in the least to confuse the design, to give it a clumsy appearance, or to render the outline of any part indistinct, they are certainly ill employed.

Painted ceilings, which constitute one of the great embellishments of Italian and French structures, and in which the greatest masters have displayed their utmost abilities, are not in use among us. For one cannot suffer to go by so high a name, the trifling, gaudy ceilings now in fashion, which, composed as they are of little rounds, squares, octagons, hexagons and ovals, excite no other idea than that of a dessert, upon the plates of which are dished out bad copies of indifferent antiques. They certainly have neither fancy, taste, splendour, execution, nor any other striking quality to recommend them. But should the true style of such compositions ever come into fashion, we might hope to see history painting flourish in England. Till then it cannot reasonably be expected; while religion has banished pictures from churches, and the prejudices of connoisseurs have excluded modern paintings from our houses.

It must, however, be allowed, that since the first publication of this book, the art of painting has taken a very different turn. At that time, little

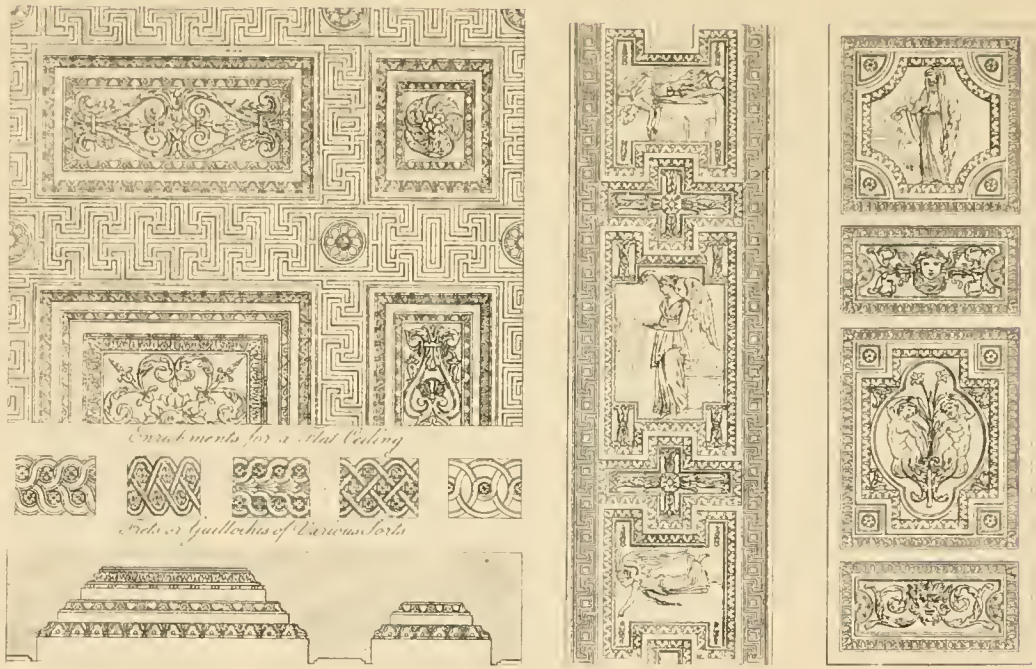
Ornaments for Ceilings.


Designs for flat ceilings
Designs for flat ceilings
Designs for flat ceilings
Designs for flat ceilings
Soffits of Arches
Design for a flat Ceiling
Soffits of Arches
Various Ornaments for the Compartments of Ceilings

Published by the Proprietors of the Building News 1860

Printed from Stone by F. Bedford & Son London

Ornaments for Ceilings



Enrichments for a Flat Ceiling

Frets or Guillochis of Various Sorts

Profile of the Ceiling above

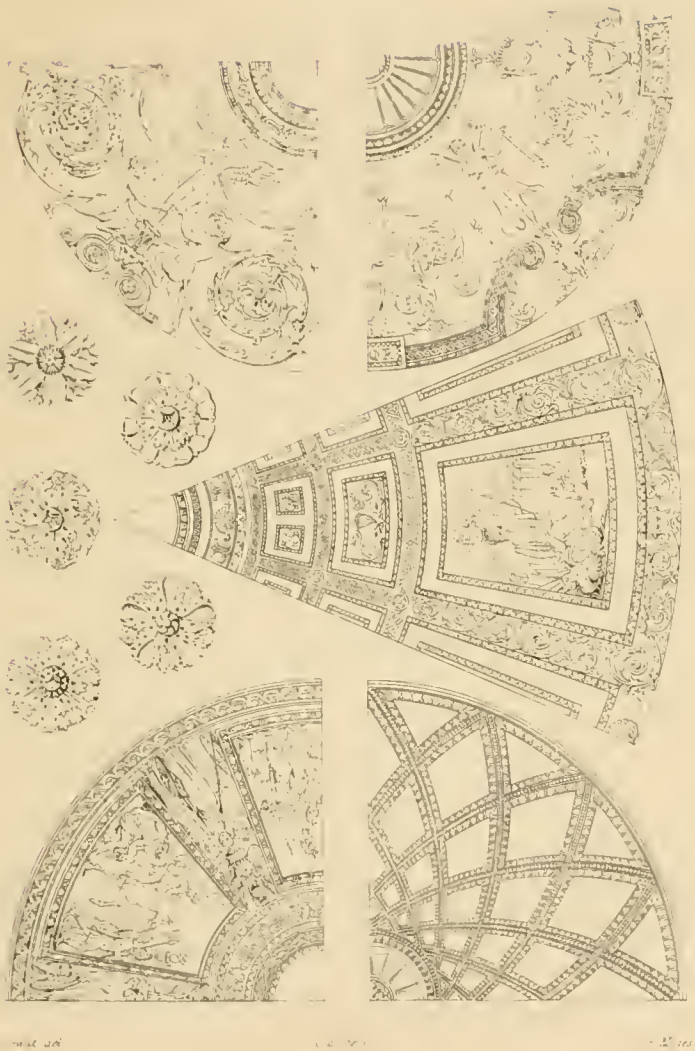
Enrichments for Soffits of Arches or Arcs Doubleaux

W. Collins del. W. Chambers Lith. W.

Published by the Proprietors of the Building News 1860

SIR WILLIAM CHAMBERS TREATISE

To follow page 312.



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SIR WILLIAM CHAMBERS' TREATISE

To follow Plate 33

encouragement was afforded to any but portrait painters; and to confess the truth, very few, even of these, deserved much to be encouraged: but the institution of a Royal Academy for the regular instruction of artists; the establishment of an exhibition under royal patronage, in which they are admitted to stand competitors for fame with those most famed; the encouragement held forth to them by his Majesty, the nobility, the gentry, and even by some of their own profession, has roused the genius of our English artists, stimulated their ambition, brightened up their prospects. Many of them now vie with the first of their contemporaries in Italy, in France, or elsewhere; and should encouragement become yet more generally diffused, it might reasonably be conjectured, from the rapid strides already made towards perfection, that, in the course of a few years, the English school might aspire to stand unrivalled, or be at least equal in fame to any other of its time.

I have now gone through the principal branches of the decorative part of architecture, which was all originally intended; my purpose having then been to reserve, for a future occasion, whatever related to the convenience, strength, or economical management of buildings. Ignorant how far I might be equal to the task undertaken, it seemed presumptuous to come upon the public with a bulky performance, possibly of no merit; and it would have been imprudent to risk my own fortune in a business which might have been ruinous to me without being profitable to others. What then was published, I offered as a specimen of that which was further intended; determined to be ruled by its reception, either to proceed or to desist.

The concise manner in which it has been attempted to treat the subject of the present publication, will, it is hoped, be some inducement to persons of distinction to peruse the performance; and if the precepts are as clear and satisfactory as the author intended, the work may be of use even to gentlemen, travellers in particular, most of whom, from utter ignorance in architecture, as well as in other arts, have heretofore lost half the fruits of their journeys, returned unacquainted with the most valued productions of the countries they had visited, and perfectly dissatisfied with expeditions, from which they had derived very little useful instruction or real amusement.

NOTE ON CEILINGS AND CEILING FENESTRATION.

Of Ceilings nothing more is said by Chambers than what relates to their surface decoration, in which he shows himself too favorably disposed towards that most *un*architectural species of it where picture, preposterously placed, is substituted for what ought to show itself distinctly and decidedly as the roof or covering of the room. The absurdity is none the less because some great masters have so misemployed their skill. No man in his senses thinks of nailing a picture, be it ever so large a one, on the ceiling; better banish it to the lumber-room at once. No doubt, when picture painting is put overhead upon a ceiling, that is one sure and certain way of getting *high art*, unless, indeed, the ceilings were so low that a tall man might touch it by stretching out his hand. No mastery of *di sotto in su* perspective can possibly overcome the disagreeable effect resulting from figures so shown, because, however well they may be when looked at in one direction, in another they become distorted. Although it is one of a different kind, it is a solecism to paint a ceiling in imitation of a sky, thereby causing the room to pretend to be roofless, unless there happen to be the droll effect produced by seeing a chandelier suspended from the clouds. When it is no more than simple polychrome decoration, not picture, painting may be applied to a ceiling properly enough. Delicate tints are to be preferred to deep colours, for the reason that the latter not only occasion an air of heaviness overhead, but lower the apparent height of a room.

When Chambers wrote, which is now rather more than a century ago, what may be termed *Ceiling Fenestration* had scarcely been imagined. Since then it has developed itself not a little, and greatly enlarged the resources of internal design. In shaping out ceilings and ceiling fenestration, Sir John Soane was quite a master, and although some of his ideas were exhibited rather crudely and unsatisfactorily, there was always something more or less in them quite sufficient to impregnate all but the most torpid imagination with a superfœtation of ideas.

It is, indeed, only under certain conditions, and consequently only in exceptional cases, that it is possible to light a room through its ceiling, yet that very circumstance serves to give additional value to that particular mode of fenestration, which, besides being highly pleasing in itself, gives the charm of varied effect by contrast with that of side-lights and wall fenestration in the other rooms. Although the architect has to provide for the admission of sufficiency of light, it is not unfrequently desirable that he should at the same time exclude prospect, or rather *out-look*. For picture-galleries and libraries, or dining-rooms, and ball-rooms, out-look is not at all required; because, as far as light is concerned, so that there be sufficiency of it in the day-time, for rooms of that description, nothing further is desirable. Ceiling fenestration is acknowledged to be the most artistic mode of admitting light, and it certainly admits also of almost infinite variety of shape and design. Among its numerous recommendations it may, perhaps, be thought one that it can never become common. Another and better founded one is that, if it shuts out view, which might not, perhaps, be at all a desirable one, it serves at the same time to shut out sound; and, moreover, diminishes danger in case of fire. Another and more obvious advantage is, that there being no side windows, the walls (in a picture gallery) are left quite free for hanging pictures, except where there may happen to be doors; which advantage is attended by a secondary—or rather principal one as regards general architectural character and effect, namely, that of *balance*, or the *similarity* and *correspondence* of opposite sides. Not in a picture gallery only, but in a library it is, if merely for

convenience sake, not a little desirable to be able to economise space, and at the same time consult artistic effect. The less a private library looks like a bookseller's shop the better. It ought not, like the latter, to be shelved from floor to ceiling. The topmost shelf ought to be within reach of an outstretched arm, when all above that height would be left as an ample field for decoration. At any rate, a library, if it can be otherwise lighted, does not require side-windows, or even shows better without them. Where it is possible to secure it, the expression of seclusion from "the noisy busy world shut out," is not at all inappropriate for a library.

Ceilings, and ceiling fenestration are, or ought to be, considered such important matters in interior design that it strikes as strange that so little attention should have been given to them by those who have written upon the practice of architecture. It is to be accounted for only by the comparative recentness of such fenestration, and its not being of general every-day application. In the homely ordinary skylight we see the germ of the modern ornate ceiling window, or windowed ceiling—a transformation almost as great as that of a chrysalis into a butterfly; and as striking an illustration of progress as is that of Fergusson, borrowed from ship-building. As regards the windowed ceiling—or by whatever other name it may be best described—the architects of our time cannot be charged with dealing in nothing more than mere copyism, and the repetition of stale hackneyed ideas. Compelled to make sky-lighting or ceiling-lighting at least sightly, and emancipated from the trammels of precedent, some of them have transmuted the indispensably necessary into the æsthetically beautiful; without, however, blocking up the way against still further advance and improvement. Should remarks of this kind be deemed out of place in a *note*, the reader is quite at liberty to condemn them.

After the above somewhat lengthy parenthesis, the proper subject of this note is now resumed;—in hyper-fenestration, if such term for it will be admitted, at least until a better and more definite one be invented, there are two most active principles of design that may be brought into play almost illimitably, namely, plan and section.

With respect to section, one very obvious mode of deviating from that of the cove and plafond, is the giving the whole ceiling a low segmental curve from side to side in its longitudinal direction, thereby producing, at each end, a tympanum or arched surface above the cornice; which, like that of a pediment, presents a very prominent and suitable space for decoration. Or should there be occasion and opportunity for doing so, such space may be filled in with a window of corresponding shape. Although not so pretentious as the fully developed dome, the *Velum* is—or may be made, a not little striking and agreeable variety of the domical or concave ceiling. As the term itself is omitted in most architectural dictionaries and glossaries, it may perhaps be necessary to explain that the velum is a portion of a dome stretched like an awning (*velum*) over the four sides of a square plan, whose diagonal gives the diameter of the base of the dome. Such conjunction of the square or cubical with the hemispherical may probably be objected to by some; yet the velum must be allowed to be a valuable variety of the dome. The beauty of the one is indeed dissimilar from that of the other, which in itself is no small advantage, inasmuch as such distinct difference of character greatly enlarges the resources of architectural design. In a velum the pendentives produced by the transition from the rectangular plan of the floor to the circular concave over head, present spaces not only admirably adapted for decoration, but suggestive of infinite variety of it. The same may be said of the lunettes or arched heads (whether semicircular or segmental) of the four walls below which cut into the dome suspended over and supported by them. What may be done with the *velar* ceiling, even upon a very moderate scale, may be seen in a small room in the Soane Museum, where the curvature of the ceiling is struck from the floor, consequently very shallow. Even that single example holds out to those who can read it what ought to be a most exciting as well as instructive lesson, suggestive of variations and combinations innumerable, as of the truncated velum when the square is gathered up by pendentives into a circular plafond, or the circular flat (plafond) opens into a superadded dome.

In his chapter on ceilings, Chambers has paid a compliment, though a cold and scant one, to Holkham Nothing less than a *chef-d'œuvre* as regards planning and much else besides, Holkham is not faultless, yet peerless, and, taken all in all, unrivalled. Compared with contemporary buildings of the same class, the interior of Holkham is a masterpiece. There are, perhaps, what may now be thought some short-comings,

for when Holkham was planned, ceiling fenestration was, as far as it existed at all, only in its infancy; or else had the Statue Gallery been lighted from above, as without difficulty it might have been, it would have been still more captivately charming than it now is. Had lighting from above been adopted, with only a single window for out-look on the West side of the room to balance the chimney-piece on the opposite one, completeness, as far as balance is concerned, would have been secured.

The subject of ceiling fenestration is so extensive that to do justice to it would require a volume devoted to it, and illustrated by examples. In a mere note like this, it must suffice to have directed attention to a speciality which affords such wide, not to say illimitable, scope to artistic design and decoration.

[W. H. L.]

DESIGNS FOR CASINES, TEMPLES, GATES, DOORS, ETC.

In the first and second plates are the elevation and plans of a casine erected at Marino, a villa belonging to the Earl of Charlemont, near Dublin.

This design was originally one of the end pavilions of a considerable composition, made soon after my return from Italy, for Edwin Lascelles, Esq., now Lord Harewood, which, among many others, his Lordship procured for Harewood House. The same composition, with considerable variations, was afterwards wrought to the extent of a palace for her late Majesty, the Dowager Queen of Sweden. The only part, however, of either of the large designs which has been executed, is the present little publication, which was built by Mr. Verpyle with great neatness and taste, after models made here and instructions sent from hence.

In the third plate are the plans and elevation of a casine, built some years ago at Wilton, the seat of the Earl of Pembroke, in Wiltshire. It consists of a small saloon and portico above, and of a little kitchen or servants' waiting-room below.

In the fourth plate is the elevation of a hunting pavilion, designed many years ago for the Earl of Ailesbury, then Lord Bruce.

In the fifth plate is a plan of the said pavilion, and also of a kind of circular monopteros temple with two rooms adjoining to it, composed originally for Henry Willoughby, Esq., now Lord Middleton. The design was afterwards considerably augmented in its plan, and contrived for the reception of statues and other valuable antiquities, belonging to the Earl of Charlemont's collection at Marino.

The sixth plate exhibits an elevation of the said circular monopteros composition.

In the seventh plate are the elevation and plan of an octagonal Doric temple, designed while at Florence, for the Earl of Tylney; and proposed to be executed in his Lordship's gardens at Wanstead.

The eighth plate exhibits the same disposition decorated in a different manner.

In the ninth plate are designs of a Corinthian prostyle temple, made for her late Royal Highness the Princess Dowager of Wales, and proposed to be erected in the gardens of Kew.

In the tenth plate are the plan and elevation of a design made for Sir Thomas Kennedy, late Earl of Cassilis, with intention to be erected at his Lordship's seat in Scotland.

In the eleventh plate are the plan and elevation of a mausoleum to the memory of Pope, Gay, and Swift, designed for Kew Gardens.

In the twelfth plate are two doors designed by Andrea Palladio, and serving as entrances to a garden near the Theatre at Vicenza.

In the thirteenth plate is a Tuscan gate, imitated from one designed by Palladio, which serves as a back entrance to the public garden at Vicenza. I have executed nearly the same design with additions at Blenheim, where it serves as the principal entrance to the kitchen garden.

In the fourteenth plate is the principal front and plan of a triumphal arch, composed by me, and executed under my direction at Wilton.

In the fifteenth plate are designs of a rustic Tuscan gate, imitated from Inigo Jones's York Stairs. An ancient inscription was by mistake put into the tablet,* which could not be effaced without spoiling the plate. I have since executed nearly the same design in the embankment of Somerset Place, with the addition of lions over the columns of the order, medallions and vases in the side intercolumniations, and pedestals under the columns; which, with the steps down to the Thames, considerably improve and augment the consequence of the composition.

In the sixteenth plate is a design made by desire of his Grace the Duke of Richmond, for an entrance to Privy Garden, Whitehall.

In the seventeenth plate is a tripod, designed for his Grace the Duke of Marlborough, executed by Mr. Witton in Portland stone, and erected in the gardens at Blenheim.

In the eighteenth plate are various ornamental utensils, designed for the Earl of Charlemont, for Lord Melbourne, and for some decorations in my own house.

In the nineteenth plate are two designs of chimney-pieces, the one intended for Windsor Castle, the other for Melbourne House in Piccadilly.

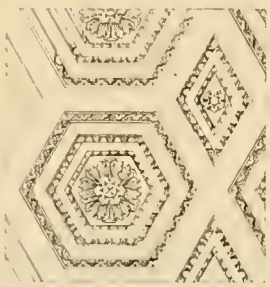
A twentieth plate was designed, and partly engraved; it consisted of ornamental utensils, invented for their Majesties, for his Grace the Duke of Marlborough, and for the Royal Academy; but the engraver, Mr. Charles

* The inscription has been omitted in the plate to this edition.—[Ed.]

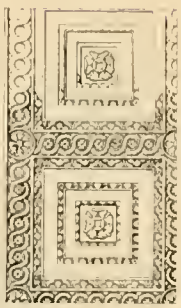
Grignion, finding it would have required more time to finish in the manner he wished than his other avocations would afford, declined to proceed: and the impossibility of finding an equally able ornamental hand to finish what he had so well begun, obliged me, though very reluctantly, to lay the publication aside.

Compartments for Coved Ceiling.

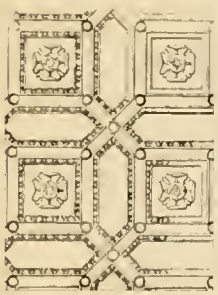
Octagons and Squares.



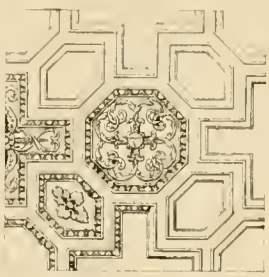
Hexagons and Lozenges



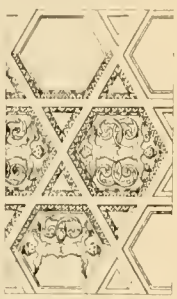
Squares with Enriched Borders



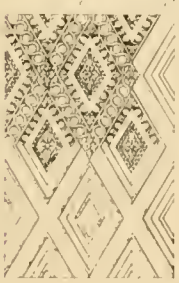
Squares Octagons & Hexagons



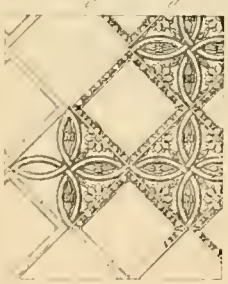
Octagons Hexagons & Crosses



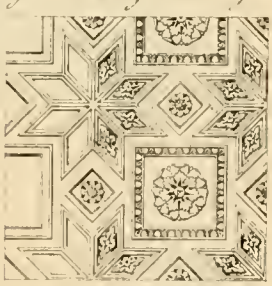
Hexagons & Triangles



Lozenges with Enriched Borders



Squares & Encreatised Circles



Squares & Stars with Flowers &c.

W. Chambers

W. Woolnoth sc

Published by the Proprietors of the Building News, 1860

SIR WILLIAM CHAMBERS TREATISE.

Printed from Stone by F. Bedford & Son, London.

To the Lord Viscount Charlemont

as humbly Inscribed by his Lordships

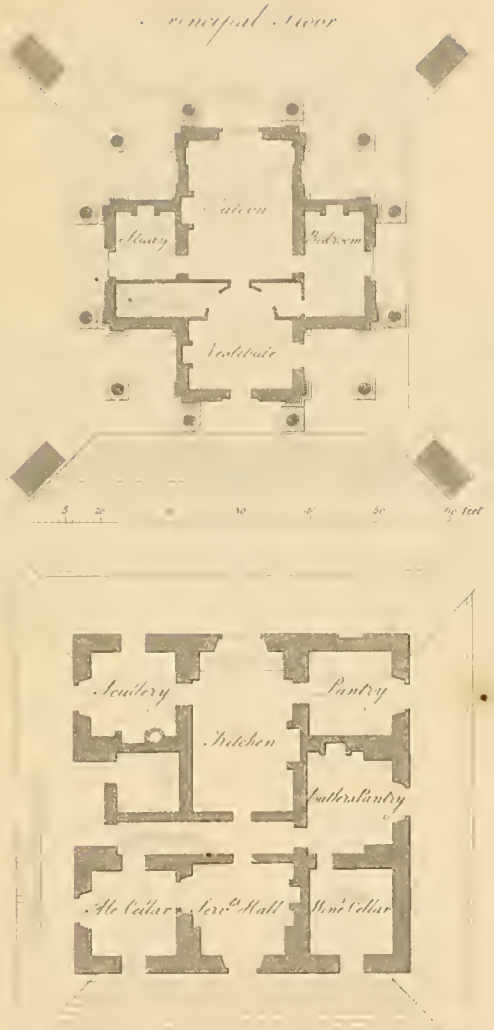
This Design of his Lordships Casine at Marino

most obedient Servant William Chambers

Published by the Proprietors of the Building News. 1860.

SIR WILLIAM CHAMBERS' TREATISE.

Printed from Stone by J. F. Cheffins & Son London



Plans of the Lord Viscount Charlemonts Casene at Marino

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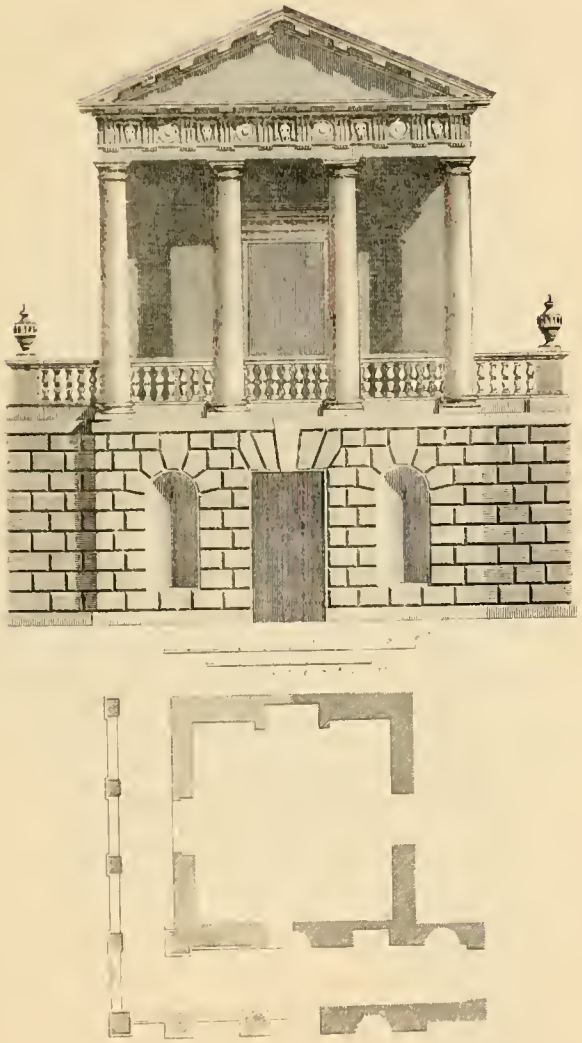

The Earl of Pembroke this Design of the Casino at Wilton is humbly Inscribed by her Ladyship most Ardent Servant William Chambers

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To Lord Bruce this Design for the Casino at Tangiers Hall in Berkshire
is humbly Inscribed by his Lordships most Obl.d Servant. William Chambers.

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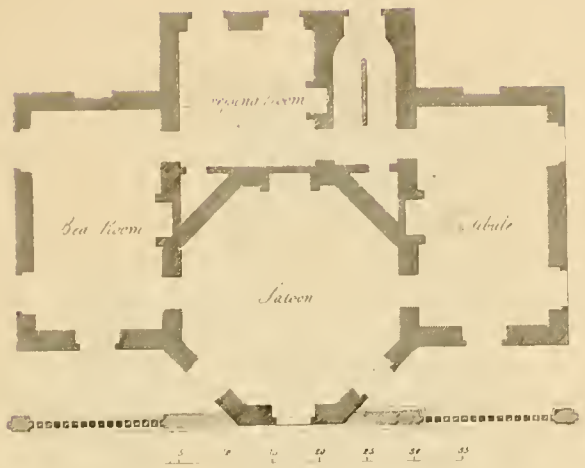
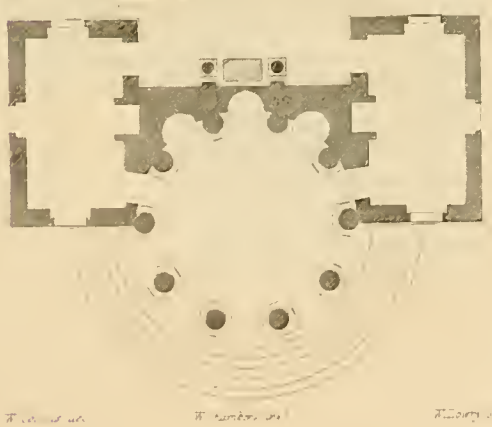


The Principal Floor of Lord Bruces Casene

Plan of Mr Wellesleighbys Temple.



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To Henry Willoughby Esqr

This Design is humbly Inscribed by his most Obedient Servant

William Chambers

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Pl. 42

To the Earl of Tilney this Design is humbly Inscribed
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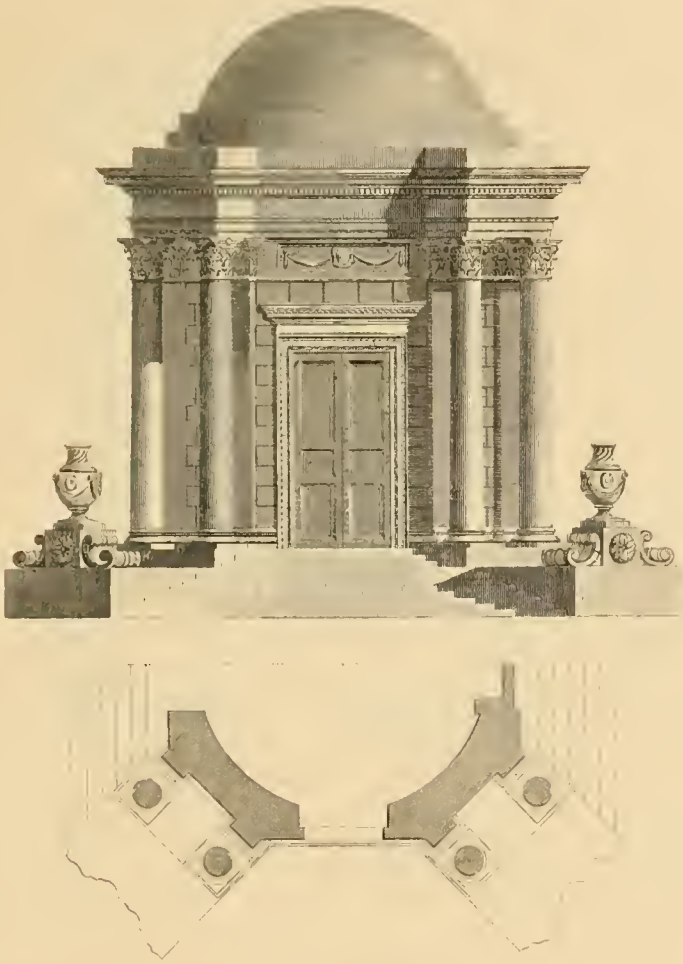

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W. Collins del. W. Chambers inv. J. Roffe sc.

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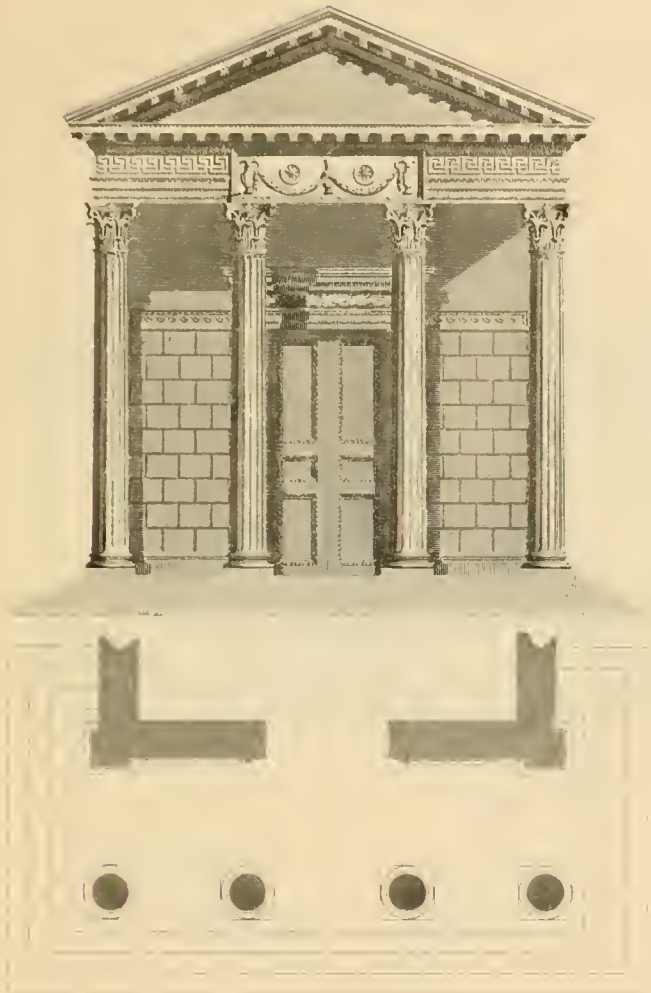
Pl. 44



To Thomas Worsley of Pleasgrave Esq. this Design is humbly Inscribed

by his most Obedient Servant William Chambers

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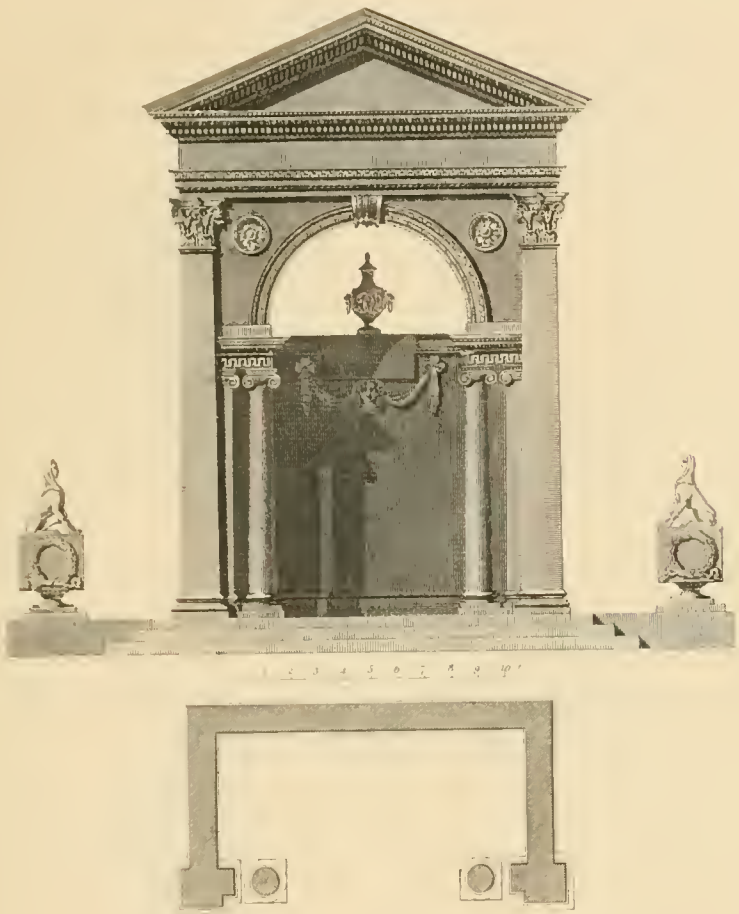

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by his most Obedient Servant Will.m Chambers

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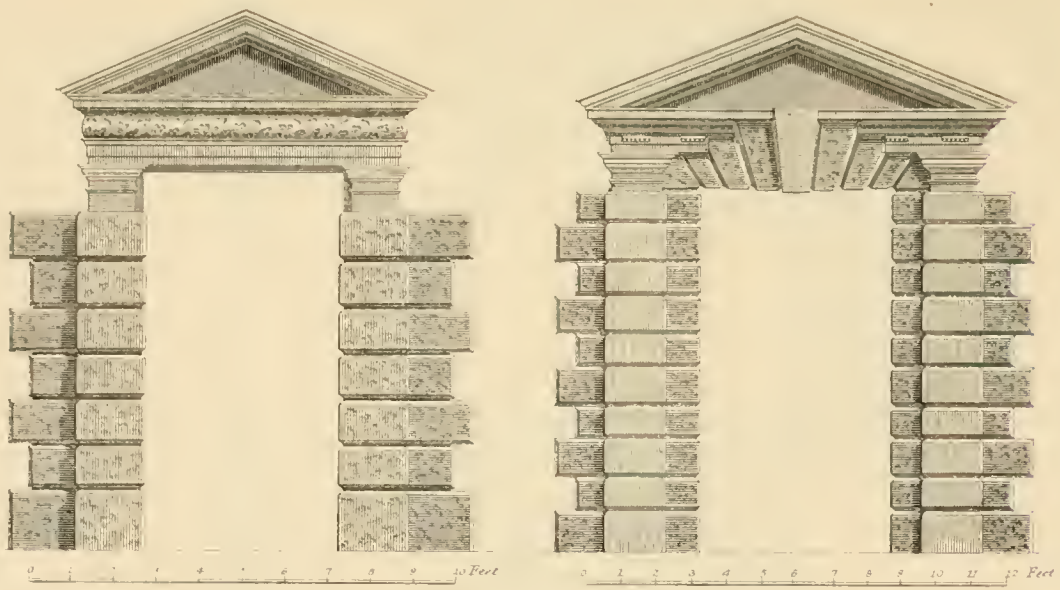
Rustick Doors to a Garden near the great Theatre at Vicenza

by Andrea Palladio



To Robert Wood Esq. these Designs are humbly Inscribed by

his most Obedient Servant, William Chambers

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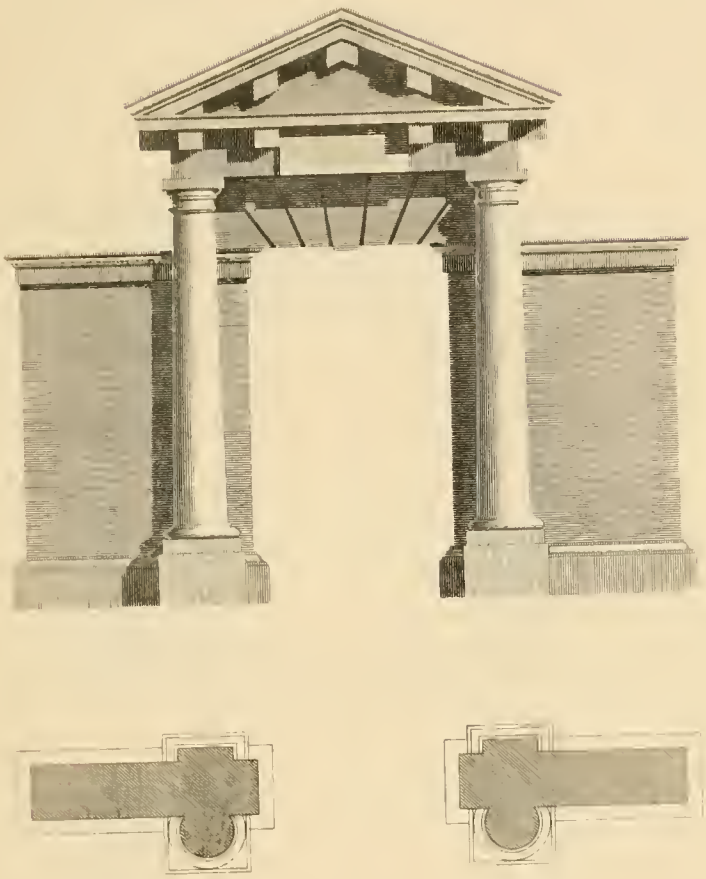

W. Collins del. W. Chambers inv.

To the Honourable Mr. Ward this Design is humbly Inscribed by his most Obdt. Servant W. Chambers

Published by the Proprietors of the Building News 1860

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To the Earl of Pembroke

this Design of the Triumphal Arch at Wilton, is humbly Inscribed by his Lordship's most Obed.t Serv.t W.m Chambers

[illegible] W. Chambers inv. S. Porter s.

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Sir Thomas Brand of the How in the County of Hertford Esq

this Plate is humbly Inscribed by his most obedient Servant Wm Chambers.

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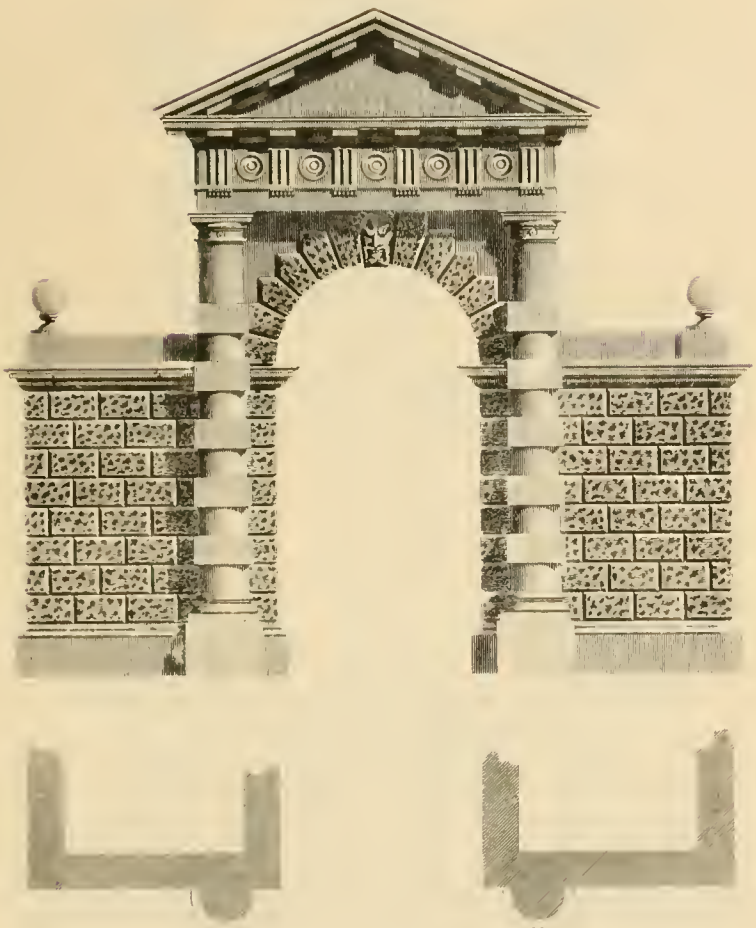

His Grace the Duke of Richmond Lenox. Aubigny this Lenox is humbly Inscribed
by his Grace's most Obedient Servant William Chambers

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SIR WILLIAM CHAMBERS TREATISE

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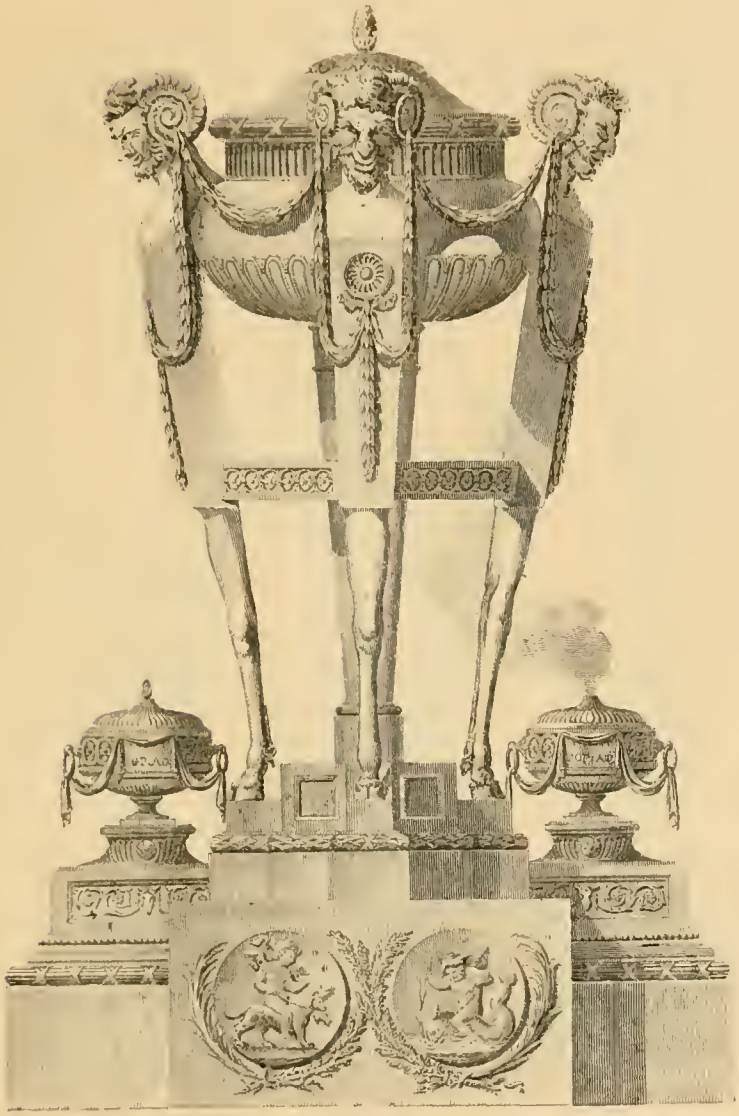
Various Ornamental Utensils



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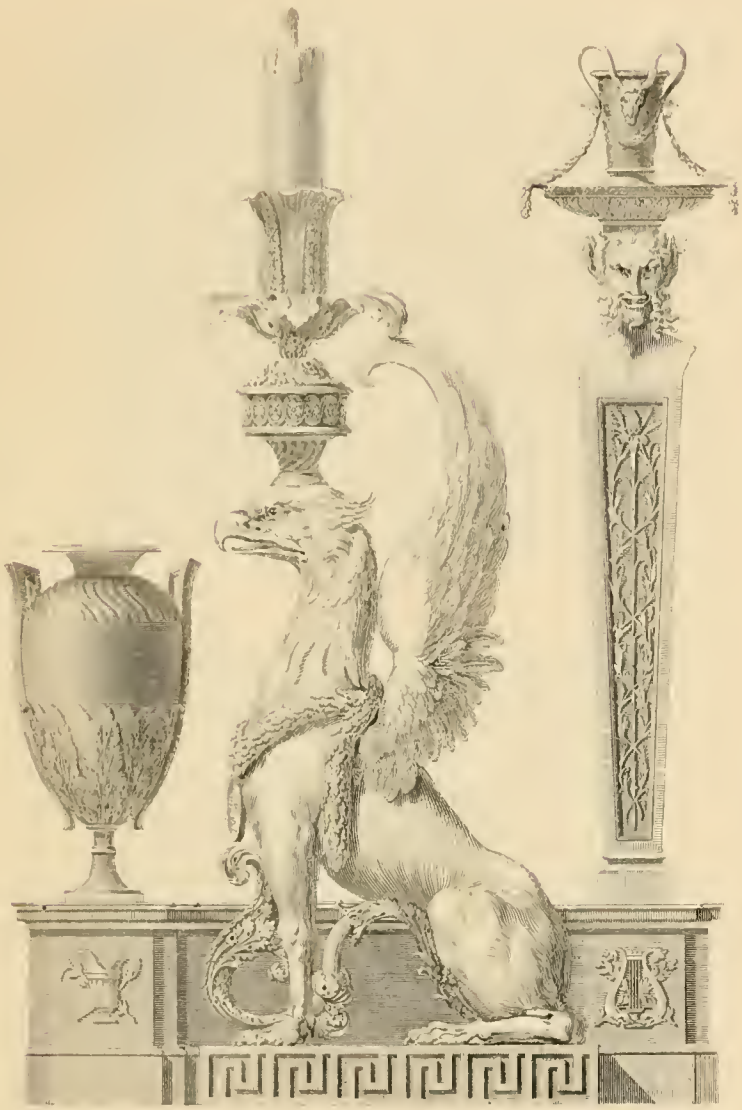

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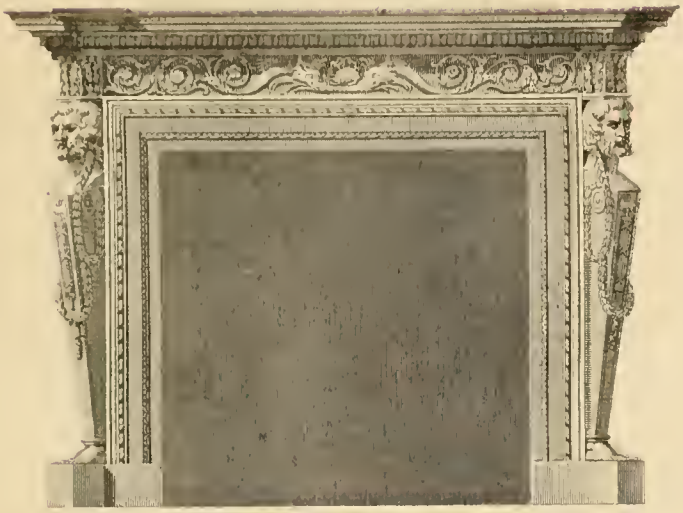

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SIR WILLIAM CHAMBERS TREATISE.

CONCLUDING REMARKS.

That the lapse of an entire century since its first publication has somewhat diminished the importance of Sir William Chambers' Treatise may be admitted without detracting from its real merit, to which testimony has been borne by the almost simultaneous appearance of two different editions some years ago—one by Papworth, the other by Gwilt; of which latter the present one is a reprint.

In Chambers' time only one style—that to which his teachings exclusively refer—was practised; but of late, many have done their best to put us out of conceit with it, and bring it into discredit. One allegation brought against it is its being un-English, another that it compels copyism. The first charge may be replied to by frankly confessing that our Anglo-Italian did not originate with ourselves. Most undeniably it was at first a borrowed and imported style; yet what of that? it is a style which, though transplanted from Italy proper, has struck firm root, not only in this country, but throughout Europe—from the Tiber to the Neva, and has since spread to the other hemisphere, which would hardly be the case had it been found unfitted for any other climate than that of Italy itself. Were it now proposed for the very first time to introduce here and make trial of the so-called Italian, or modern secular and domestic Classic, it might with some plausibility be objected to as being an outlandish and exotic mode of building; whereas not only has trial been made of it, but it *has been* adopted long ago, and has taken such firm root, and spread itself so widely throughout the length and breadth of the land, that to exterminate it has become an utter impossibility.

That our Anglo-Italian does not at all represent or reflect our now happily by-gone phase of Mediævalism may be very safely granted. With the Electric Telegraph, and a great deal besides, staring us in the face, and convicting us of departing further and further from Mediævalism, we may be well excused for not simulating or attempting to revive it in architecture, when in all else the tide and current flow in the contrary direction. That, considered not only as a style, but as a *system* of building, what, for want of more exact designation, we term Italian is well adapted to our purposes and requirements, is sufficiently evident from the fact of its being conformed to universally when no regard is had to style, nor any attempt made at architectural design. There is no constitutional difference between it and what has been stigmatised and sneered at as our English Vernacular—which, no doubt, has nothing of the poetic or the picturesque, yet, prosaic as it is, it possesses one negative merit, for if it does not affect the poetry, neither does it palm upon us the doggrel of architecture, and accordingly spares us many monstrosities.

With respect to the charge of copyism, it must be acknowledged that hitherto we have had too much of it; owing to undue stress having been laid upon the observance of too minute and quite arbitrary rules. As leading-strings to the student, rules are decidedly serviceable, but they ought not to be allowed to become fetters to the advanced artist architect. This is, indeed, not altogether in accordance with Chambers' own teachings; yet, had he written at the present day, he would perhaps have considerably modified some of his opinions; nor ought respect for him to deter us from adopting more enlarged and liberal views. So far from opening the door to lawless laxity of design, rational liberty is the safety-valve that secures from the explosions of wild caprice. Had there been no pedantic strait-laced Vitruvianists, probably the Renaissance would have developed itself more genially. Vitruvius himself seems to have had very little of the artist in him; and however interesting his writings may be to the archæologist and the scholar, they are of no real value to the architect—at least not now, when all the positive information to be derived from them has been diffused through modern works. Somewhat in

like manner, too, as the superstitious reverence of Vitruvius blighted the budding Renaissance, did Stuart and Revett's far-famed work, with the minutest measurements of details figured on the plates, mildew, though no doubt quite unintentionally, our Anglo-Greek.

If not a sad, a very great mistake it was, to attempt to reduce veritable Greek architecture to the quite different exigencies of modern requirements, by the simple process of merely eliminating and expunging the manifold elements of artistic design that had been gradually added to its originally few and scanty ones. Instead of so diminishing the resources of architectural composition and design, the more rational course would have been, while retaining Roman ideas, Roman inventions, Roman architecture, with all its later aggregate accretions, to have endeavoured to refine it by shedding Attic grace over Roman grandeur. Since it cannot be denied, it may as well be candidly admitted, that Roman is greatly inferior to Greek as regards studied elegance of detail; yet, at the same time, it is vastly superior to it in its power of producing grandiose effects and varied combinations. Properly considered, to the modern architect it is rather an advantage than the contrary, that the defects and shortcomings of Roman and its Italian successor afford him the opportunity and ample excuse for breaking away from copyism, by correcting what are admitted to be defects, by supplying or supplementing what are felt to be deficiencies. When it was taken up by us, Greek certainly needed to be supplemented, and very largely too; nevertheless, it was not. On the contrary, it was, quite as often as not, only torn out from "Stuart," and tacked on as a *purpureus pannus* to the vilest dowlas. No wonder, then, that after such experience of Greek, or rather would-be Greek, a sudden reaction took place, and fortunately when there was just "the man for the hour." Sir Charles Barry may be said to form an epoch in the history of our Anglo-Italian, not only by what he himself did in it, but also by the impulse he gave it in a fresh direction. All at once he brought into vogue that class of Italian which differs considerably from the Palladian, and is, therefore, sometimes distinguished by the epithet *palazzo*. Borrow he certainly did, yet he never copied; on the contrary, gifted with the eye and with the instinctive feeling of an artist, whatever "he touched he adorned," by treating it with consummate taste, "and snatching a grace beyond the reach of rules." Even had he done nothing besides in other respects, he would have done much, and rendered us a great service, by showing how important it is to attend to consistency and completeness; also that it is not impossible to reconcile richness with sobriety, and highly finished-up and varied detail with simplicity. Always attentive to artistic expression, Barry was never commonplace, but, on the contrary, sometimes showed great originality where there was nothing to strike the ordinary spectator as being at all out of the common. How much he did for advancing architectural taste may, perhaps, be best estimated by contrasting his ornate *astylar* with the pretentious poverty of consumptive Italian subsequently to Chambers' practice, when, by the Taylors and Wyatts of that day, a mere Order, either of columns or pilasters, was made the substitute for *bonâ fide* design. The suppression of consistently articulated detail was then thought to be, or at any rate was then honoured with the name of, simplicity and lightness, which latter is a quality of exceedingly questionable merit in architecture, unless the term is to be interpreted *grano salis*, and by "lightness" no more is to be understood than opposition to offensive heaviness. As to simplicity, we have tolerated too much of a very spurious sort of it. Real artistic simplicity can hardly exist apart from uniformity of character, whether it be that of plainness or ornateness being kept up throughout, so as, at any rate, to secure congruity of *ensemble*, which, important as it is, is oftener than not wholly disregarded. Not unfrequently both pretentiousness and parsimoniousness were displayed in one and the same design, together with many other similar incongruities and contradictions, which, however, are to be attributed not to the incapability of the style itself, but to the incapacity of those who, having no ideas of their own—no sympathy with it, nor any intuitive perception of the *eumorphic*,—are unable to produce freshness of character by means of judicious modifications. Regard is to be had to normal forms and conditions, yet there will still be a large margin for almost innumerable varieties, all having something in common, yet at the same time some distinctive difference, more or less strongly marked, as is the case with many antique capitals. The architect who had thoughtfully studied and caught the spirit of his models, might surely be safely trusted to break away from literal mechanical imitation, without much danger of his indulging in the crude vagaries of an undis-

ciplined fancy, devoid of any real power of imagination; or attempting to shape out all at once a distinct nineteenth century style; yet aught really worthy to be termed a style of architecture must grow up from circumstances, and be built up gradually by the workings of many minds.

That there should be any demand, in any quarter, for a new style, is rather than not an unhealthy symptom. That Modern Classic is not without its shortcomings must be admitted, and may be so, not only frankly, but even cheerfully, since it follows that the road to further advance is not blocked up, but an opening is yet left for improvement and extension of the style. We have only to go on in the same track, and such change as is at all desirable will take place spontaneously, without premeditation or effort on our part, and manifest itself as the natural, if not inevitable, result of progress in all those subordinate and ancillary arts and appliances which minister to architecture. One truly happy innovation of former practice has been adverted to in the Note on Ceilings (p. 310); and to say nothing of very superior general effect in a gallery lighted through its ceiling, almost double the available space for hanging pictures properly is obtained, in comparison with what would be were it lighted from one of its sides. The same applies to libraries, where convenience would be best consulted by having the topmost shelf for books within arm's reach. A private picture-gallery ought not to look like a plethoric cramfull exhibition-room, neither ought a library to look like a bookseller's shop.

Besides what may be called Ceiling Fenestration proper, it is now in our power entirely to cover in very large spaces—even what would otherwise be open courts—with a single roof of glass, so that all beneath it is completely protected from the weather, and it becomes possible to have an indoor winter-garden. Nor is there any reason wherefore more than has yet been attempted should not now be done with colored glass. Why should the use of iridescent diaphonous polychromy, in other woods, of painted windows, be looked upon as the exclusive privilege of the mediæval styles? Sameness of material does not necessitate the slightest similarity of character with respect to design; and perhaps it would be all the better were there to be no attempt at pictorial representation of any kind, but merely unmeaning ornamental pattern-work, which, however unmeaning, need not be either ungraceful or unimaginative.

Much more than seems yet to have been thought of may likewise be done with unglazed encaustic tiles; yet how far it be done successfully must depend entirely upon the taste shown by those who employ them, since excellence of material by no means insures excellence of design, or even tolerably satisfactory effect. Ornamental pavement with tiles of that description is suitable not only for halls and vestibules but for external colonnades. We are, indeed, told by some that colonnades are not at all suited to this climate, yet, it so, the climate itself must be a most extraordinary one, if, though it permits us to have uncovered terraces, it forbids the roofed-in, sheltered colonnade, which, if properly placed, may be made a most convenient and desirable ambulatory in immediate connection with the principal rooms, which are now almost invariably on the ground floors. Are the colonnades of Greenwich Hospital no better than idle, useless appendages to that noble pile, intended merely to make up architectural show? We need not wait for the reply.

A colonnaded ambulatory may not only be made a beautiful architectural feature as well as a commodious appendage to a country mansion, but also serve to screen out the unsightly domestic offices or stable yards; and if, as we are now told by some, the architect ought to be guided by Nature, he ought also to know that Nature ever keeps the unsightly out of sight. Nature teaches what some now call sham. It *veneers* the human frame with only skin-deep beauty, sparing us the horrors of the dissecting-room. Nature inculcates the observance of symmetry in all the higher organised animated forms, whether brute or human. This remark is to be considered as merely parenthetical. To return after its interruption from what, if followed up, would lead to a lengthy digression, most assuredly it is not our climate that condemns the colonnade or pillared terrace as an absurdity. Neither need an entrance-portico be a mere ornamental excrescence, for it may be rendered practicable for carriages, so that visitors can alight under cover. As far as comfort is concerned the carriage-portico is a decided improvement; how far it is made a decidedly beautiful feature, with all besides in accordance with it, depends not upon the style, but upon the discretion of him who employs it. During the so-called Greek mania, porticoes—some of them by eminent

architects—were the veriest platitudes of design,—mere cockneyism, concocted out of Athenian Stuart's drawings. A completely finished-up portico, as regards not only external elevation, but internal plan and background, has yet to be produced, and for producing it the means are as ample as they seem to be ill-understood. An almost yet untrodden path presents itself to the architect in that direction, which, like a very great deal besides, seems to have been hitherto overlooked. So far from being, as some would have us believe, exhausted, the classic system is fraught with inextinguishable vitality. To all appearance, too little study is given to general composition and artistic combination of existing elements of design. Nor is it, indeed, to be expected that routine office-training should

"Imp the fledged pinions for their loftiest flight."

The architect is no exception to the rule that all those who have distinguished themselves in art, no matter of what kind, have been more or less, self-taught—have felt the inspiring *numen*, and yielded to its power, simply because they could not resist it.

Although architecture justly ranks as one of the three arts of design, it is very differently circumstanced from the other two. Of all arts it is the most monumental,—the one which records

"Nations extinct, and empires passed away."

At the same time, it must be confessed that it is of very centaur-like nature,—a compound, not unnatural but inevitable, of the animal with the intellectual. Architecture necessarily includes Building; the former is consequently influenced more or less, whether for evil or for good, by external circumstances. The rolling tide of mechanical improvement comes in, defiant alike of Canute's royal mandate to retire, or of Mrs. Partington's attempt to mop it out. Not only does every improvement in the mechanic and industrial arts affect architecture, but also the changes in habits of living. To trace the progressive change from the utter wretchedness of a feudal castle to the amenities of a modern mansion,

"Where breathes the statue, and the picture speaks,"

would be neither uninstructive nor uninteresting.

The various improvements which have taken place within the memory of those still living, are certainly neither few nor inconsiderable. In fact, if we fairly compare together houses of the same class, everything bespeaks improvement, whether as regards usefulness or appearance. The general style of furniture, fittings up, paperhangings, is greatly better than it used to be at the commencement of the century. Although graining and other imitations, whether of the choicer kind of wood, or even of marble, are unsparingly condemned by some as nothing less than downright dishonesty, something is to be said in defence of them; at any rate, such dishonesty does not injure our neighbour, and it also creates a demand for skilled labour, and for a degree of ability far surpassing that of the ordinary house-painter or white-washer, who works only with a single colour. The operative becomes something more than a mere living machine inasmuch as he must employ his mind as well as his hand. The greater the deception—or shall we call it dishonesty?—the greater the pleasure it affords. Besides which, well-executed deceptions of the kind are too expensive to become vulgarly common. Even as bad taste may be shown with genuine and costly materials, so may those which are of comparatively little or no money-worth, except in the first instance, be made, if applied with discreet reserve, to exhibit artist-like treatment, and more than ordinary good taste.

We ought, perhaps, to be grateful that plaster casts have not yet been denounced as no better than shams; still more grateful ought we to be so that we are now able to acquire at a mere fractional cost copies of some of the finest productions of sculpture. As Sir Gardner Wilkinson has well remarked, the poor Italian image-boys, who carry about their plaster figures on a board, have done much towards diffusing a better taste among the population of this country.

To pass on to what is more especially connected with architecture, the means of architectural illustration have been wonderfully facilitated and economised by lithography and wood engraving; but, above all, by the discovery of photography. How greatly and how rapidly lithography has advanced since its first infantine efforts need not be said. In that species of it called chromo-lithography, perfection seems to

have been attained, and leaves nothing to be desired for the complete rendering of ornament and pattern, in which colour plays a prominent part. Although itself is no new invention, wood engraving has become a very superior and far more important branch of graphic art than it used to be not very many years ago, more especially as regards architectural delineation, it having been shown to be now fully capable of exhibiting the utmost sharpness and accuracy of lines with spirited effect; in proof of which, it may be permitted here to refer to some specimens of it that have appeared in the BUILDING NEWS. The advantages attending wood engraving are sufficiently obvious without being pointed out; it has certainly rendered considerable service to architecture by helping to popularise the study of it, by bringing subjects of the kind before a much larger public than formerly.

But it is the invention, or rather discovery, of Photography that not only promises much, but has already achieved marvels; and fortunate it is that it is most of all successful in expressing what is most of all difficult, not to say impossible, the minutest architectural details with unerring truthfulness. Nor is instantaneousness of execution its least recommendation. What, if delineated by the most practised hand, would be the labour of days, is performed almost in a few seconds, no matter how intricate and full of detail the subject may be, though success, of course, depends upon the skill and experience of the operator himself, there being a very great difference indeed between a successful and an unsuccessful photograph, as regards effect and distinctness. The satisfaction derived from a perfect photographic *impression*—so to call it—is greatly enhanced by the assurance of its trustworthiness, since there can be neither error nor deception,—none of those delusive, though, perhaps, captivating effects, in which a cunning pencil is apt to indulge as legitimate artistic licenses, but, on the contrary, there *must* be perfect truthfulness, both as to perspective and to light and shade,—of which latter too little account is taken in architectural composition, in fact, it is altogether ignored in mere outline engraving, now the prevalent mode of execution for nearly all the more important architectural works published on the Continent: with which remarks, the subject of Photography must be here dismissed, or it would detain us too long.

Whether this be exactly the place or not for speaking of it, the system of public architectural competitions demands some notice. Considered abstractedly as a general principle, competition, that is, the spirit of emulation and rivalry, is no doubt a very excellent one, and not a little beneficial to society; but architectural competition is something of a quite different and very peculiar nature. Much, indeed, may be urged in favour of it: it stimulates to exertion, and it opens opportunities to unknown talent to emerge from obscurity. Theory is most decidedly in favour of architectural competition, since it assumes, as a moral certainty, that out of a number of designs the very best is sure to be the one selected; they who ask for designs being, of course, perfectly qualified and competent to sit in judgment on those which are submitted to them. Yet, unfortunately, Practice tells a very different tale from Theory: building committees are apt to act very arbitrarily; and, instead of regarding themselves as stewards for others, seem, almost as often as not, to consider themselves perfectly at liberty to indulge their own fancies or private partialities, without being accountable to any one for their doings.

Competitions would be somewhat differently managed, and, no doubt, more satisfactorily to those who engage in them, were the wholesome check of responsibility imposed upon those who undertake the management of them. Sir Gardner Wilkinson has made some very stringent observations on the imperative necessity for such responsibility. "Each member of a committee," he says, "should be obliged to put down his opinions in *writing*, and give his reasons in writing." No doubt such a regulation would be a most salutary and beneficial one; but, it will be asked, how is it to be enforced and rendered compulsory? Well, at any rate, there is one most emphatic and effectual mode of persuasion that, having been found efficacious in other cases, might be resorted to, namely, an Act of Parliament, rendering it illegal to invite architects, by public advertisement, to send in designs to a public competition, unless publicity be given to all the subsequent proceedings; whereas, at present, nothing more than the bare result is known. It may, indeed, be questioned if competition, as now managed, be really so beneficial to architecture itself, or to those who practise it, as is generally supposed. Very certain, however, it is that it affords architects a very great deal of employment, quite voluntary, no doubt, but at the same time unprofitable—at least not paid for.

One inconvenience generally attending competitions is occasioned very needlessly by the inadequate time allowed for preparing designs. To say the least of it, this is strangely inconsiderate, if only because such ill-judged hurry renders it scarcely possible to obtain carefully-studied and well-matured *designs*, between which and showily *ad captandum* executed *drawings* there is a very material difference. Those who, for their own advantage—real or supposed—invite architects to compete, must be fully aware that they are luring all but the successful one, and those who obtain a premium, into giving their time and labour *gratis*, therefore ought to show some decent consideration for persons whom they so *employ*, with which remark the subject of competition must be now dismissed.

Not a little remarkable is it that Italian Gothic has of late been taken into especial favour by some of those who are strongly opposed to Italian Classic. Yet the objection urged against the latter, on the score of its being of foreign origin, surely applies still more forcibly to a species of Gothic decidedly inferior to that of our own country, and which is, besides, almost altogether deficient in those characteristics of the style upon which so much stress is laid by its advocates and admirers. Instead of verticality, it is *horizontality* and *flatness* that prevail, as is undeniably the case with the Ducal Palace at Venice, also, though in a lesser degree, with most of the façades of the mediæval palaces in that city, in which the gable is an unknown feature. A parallel, *à la* Plutarch, or a "contrast," *à la* Pugin, might here be drawn between that style and our own secular and domestic Gothic, were it not that it would detain us too long, and be likely to be looked upon as an excrescence. What does call for some observation is the change which in this country took place, occasioned by the gradual lowering of the arch, when applied to the apertures of domestic buildings, till it was at length discarded ; and in our Elizabethan the square-headed form was generally adopted as the more convenient one for windows, especially internally, where they are, besides, more in accordance with square-headed doors, and with horizontal ceilings.

By some, Gothic has been commended on account of its not requiring—at least being supposed not to require—any attention to be paid to symmetry, or even general homogeneousness of character. To be allowed to put doors and windows any how is, no doubt, highly convenient; it at once gets over a great many difficulties, and spares the architect no small amount of trouble, since no study, no ingenuity is required for putting together a patchwork assemblage of discordant parts. However good it may be in itself, as such, mere common-sense building is not architecture, the latter standing in the same relationship to the other as the flower of a plant does to its root, or as poetry does to prose.

Fine art architecture accordingly demands strict observance of symmetry in composition, and its productions should bear evidence of *artist mind* having been employed upon them. In every style of architecture, all noble works have ever been devised with regard to regularity of organisation—at least originally, however much the symmetry intended at first to be observed has been afterwards broken up.

No doubt it is not always an easy matter to reconcile the requirements of external design with those of internal plan ; but then, the greater such difficulty, the greater the merit of overcoming it. By stimulating invention, difficulties sometimes lead to happy ideas that might not else have presented themselves. At any rate, if concinnity of external design is made to give way to the exigencies of internal plan, we have some right to expect that the latter will be more than ordinarily satisfactory; which is, however, by no means the case. On the contrary, more than one recently-erected large country mansion might be named which is as wretchedly arranged within as it is slovenly designed without. If merely tacking room to room is to be considered *planning*, the study else requisite for that important part of architectural design is reduced to a minimum, or, rather, got rid of altogether ; more, perhaps, to the convenience of many who call themselves architects than to the benefit and advancement of architecture itself.

These "Remarks" might be greatly extended, but it has become time to bring them to a close. That every one will agree with all that has been said in the course of them is not even for a moment to be supposed, since more than one cannot but take exception to some of the opinions put forth, not only here, but in several of the previous Notes. Those who disapprove—and they may be the majority—will have reason to be grateful, not to me, but to circumstances hindering me from giving utterance to a very great

deal more. By the Classicists I shall probably be considered very lax and latitudinarian; by the Gothicists be regarded as an avowed foe, for the reason that notwithstanding my admiration of Gothic itself as a past style, impressively characteristic of an earlier period of our civilisation, I hold it to be almost wholly unsuitable for secular buildings generally—whether public or private ones—at the present day. And I dissent entirely from those who, like Welby Pugin, would fain revive not only Gothic architecture, but Mediævalism also, in every department of Art.

After all, whichever be the style adopted, very much will depend upon the ability of those who employ it; since the excellence of a style, simply considered as such, by no means ensures excellence of design in it, and successful treatment of it. It is for the architect to bring out all the better qualities of the style he practises, and perhaps develop others, by treating it, if not with positive genius, with *con amore* geniality, and genuine artistic feeling, cultivated by earnest study,

> Which power in-dwelling, will to him impart,
> Whose master-passion is the love of Art.
> By that impelled, 'tis given him to reach
> That happy skill which rules can never teach.

W. H. LEEDS.

PRINCIPAL TERMS EMPLOYED IN THE SCIENCE OF ARCHITECTURE.

ABACUS. The upper member of the Capital of a Column whereon the Architrave rests. In the Corinthian order its four sides recede inwardly in segments of Circles on the plan, and are decorated in the centre with a flower or other ornament. The original object in its use was doubtless to give breadth to the top of the Column, and prepare a larger level bed for the reception of the Entablature.

Scamozzi uses this term for a concave moulding in the Capital of the Tuscan Pedestal, which, considering its etymology, is an error.

ABUTMENT. The solid part of a pier from which an arch springs.

ACANTHUS. A plant called in English *Bear's Breech*, whose leaves are employed for decorating the Corinthian and Composite Capitals.

The leaves of the Acanthus are used on the bell of the Capital, and distinguish the two rich orders from the three others. In those two orders they are however differently disposed, as may be seen by reference to the plates of the Corinthian and Composite orders in this work.

In the Composite Capitals of the Arches of Titus and Septimus Severus, the leaves seem from their strong indentations to be meant to represent Parsley leaves. Those in the Temple of Vesta at Rome differ from the Acanthus, and are usually denominated Laurel leaves.

ACROTERIA. The small Pedestals placed on the extremities and apex of a pediment. They are usually without bases or plinths, and were originally intended to bear statues.

Vitruvius gives rules for their dimensions. Some use the word Acroteria to express a figure of stone or metal placed on the top of a building, but in its strict meaning it can only be applied to the Pedestals above mentioned.

ALCOVE. The original and strict meaning of this word, which is derived, from the Spanish *Alcóba*, is that part of a bed-chamber in which the bed stands, and is separated from the other parts of the room by Columns or Pilasters. The seats in gardens have however in this country been expressed by this term.

AMPHIPROSTYLE. In ancient Architecture, a Temple with Columns in the rear as well as in the front.

AMPHITHEATRE. A double theatre, of an elliptical form on the plan for the Exhibition of the ancient Gladiatorial fights and other shows. Its *Arena* or *Pit*, in which those exhibitions took place, was encompassed with seats rising above each other; and the exterior had the accommodation of porticos or arcades for the public. It was distinguished from the Theatres, by its consisting of two theatres placed end to end.

The remains of four very considerable Amphitheatres are still in existence. That of Pola in Istria. The Coliseum at Rome, built by Vespasian. One at Verona, and the fourth in Languedoc, near Nismes—besides some others.

ANCONES. The Consoles or ornaments cut on the keys of Arches, sometimes serving to support busts or other figures.

ANNULET. A small square Moulding, which crowns or accompanies a larger. Also that fillet which separates the flutings of a column. It is sometimes called a *list* or *listella*—which see.

ANTÆ. A name given to pilasters attached to a wall. Vitruvius calls them *Parastatæ* when insulated. They are not diminished, and in all the Greek examples their capitals are different from those of the columns they accompany.

APOPHYGE. That Part of a Column between the upper fillet of the base and the cylindrical part of the shaft of the column, which is usually curved into it by a cavetto.

AQUEDUCT. An artificial Canal for the conveyance of Water, either above or under ground. The Roman Aqueducts are mostly in the former predicament.

ARÆOSTYLE. That style of building in which the Columns are distant four and sometimes five diameters from each other, but the former is the proportion to which the term is usually applied. This Columnar arrangement is suited to the Tuscan order only.

ARCH. An artful arrangement of bricks, stones, or other materials in a curvilinear form, which by their mutual pressure and support perform the office of a lintel, and carry superincumbent weights—the whole resting at its extremities upon piers or abutments.

ARCHITRAVE. The lower of the primary divisions of the Entablature. It is placed immediately upon the Abacus of the Capital.

ASTRAGAL. From the Greek *αστραγαλος*, a bone in the foot, to which this moulding was supposed to bear a resemblance, is a small moulding, whose profile is semicircular, and bears also the name of *Talon* or *Tondino*. The Astragal is often cut into beads and berries, and used in ornamented entablatures to separate the faces of the Architrave.

ATTIC BASE. See BASE.

ATTIC ORDER. An order of low Pilasters, generally placed over some other order of Columns. It is improperly so called, for the arrangement can scarcely be called an Order.

BALCONY. A Projection from the surface of a wall, supported by Consoles or Pillars, and surrounded by a Balustrade.

BALUSTER. A small Pillar or Pilaster, serving to support a rail. Its form is of considerable variety, in different examples. Sometimes it is round, at other times square: it is adorned with mouldings and other decorations, according to the richness of the order it accompanies.

BALUSTRADE. A connected range of a number of Balusters on Balconies, Terraces, round Altars, &c.—See BALUSTER.

BAND. A term used to express what is generally called a *Face* or *Fascia*. It more properly means a flat low *square profiled* member, without respect to its place. That from which the Corinthian or other modillions, or the Dentils project, is called the Modillion Band, or the Dentil Band, as the case may be.

BANDELET. A diminutive of the foregoing term, used to express any narrow flat moulding. The Tænia on the Doric Architrave is called its Bandelet.

BASE. The lower part of a Column, moulded or plain, on which the shaft is placed.

The word also signifies any support, but is in decorative Architecture mostly used in the above sense. The earliest Columns, as those of the Grecian Doric,

were without Bases, standing immediately on the floor or pavement of the Portico. The Tuscan Base has only a single torus or round member on the Plinth. The Roman Doric, a torus and an astragal. The Ionic, a single large torus placed over two slender scotiæ, which are separated by two astragals. The Corinthian Base has two tori, two scotiæ, and two astragals. The Composite has a double astragal in the middle.

Besides the above there is another species denominated the Attic Base. This base consists of two tori and a scotia. The former are of different dimensions, the upper one being the least, and are separated from the scotia by a fillet on the top of one and at the bottom of the other.

BASILICA. A Town or Court Hall, a Cathedral, a Palace where Kings administered justice. This name is particularly applied at Rome, to the Churches of *Santa Croce di Gerusalemme, San Giovanni Laterano, Santa Maria Maggiore, San Lorenzo fuori le mura, San Paolo, San Sebastiano,* and *San Pietro del Vaticano.*

BED MOULDINGS. Those mouldings in all the Orders between the Corona and Frieze.

BOSSAGE. (A French term). Any projection left rough on the face of a stone for the purpose of sculpture, which is usually the last thing finished.

BOULTIN. A name given to the moulding called the egg or quarter round.

CABLING. The filling up of the lower part of the fluting of a Column, with a solid cylindrical piece. Flutings thus treated are said to be Cabled.

CAISSON. A name given to the sunk panels of various geometrical forms symmetrically disposed in flat or vaulted ceilings, or in soffits generally.

CAPITAL. The head or uppermost part of a Column or Pilaster. The Capitals of the several orders differ as follows:—The Tuscan capital consists of an abacus or square piece at the top, under which is an ovolo or quarter round, and under that a neck, terminated by an astragal or fillet, which latter is considered as belonging to the shaft of the Column. The Roman Doric Capital has an abacus, ovolo, and neck like the Tuscan, but in addition has three annulets under the ovolo and a cyma or ogee, with its fillet over the abacus. The Grecian Doric, however, has only a square abacus, ovolo, and small fillets. The Ionic capital consists of three principal parts—an abacus composed of an ogee and fillet, a rind which forms the scrolls, and an ovolo and astragal at bottom. The Corinthian consists of an abacus of peculiar form, and a bell covered with leaves and stalks; the leaves forming its under part, and the stalks rising between them, and turning down in the form of scrolls when they reach the abacus. The Composite Capital borrows an ovolo from the Doric, and Volutes from the Ionic, and a double tier of leaves from the Corinthian.

CARTOUCH. The same as modillion, except that it exclusively used to signify those blocks or modillions at the eaves of a house.—See MODILLION.

CARYATIDES. Figures of women, which serve instead of Columns to support the entablature. Their origin, as asserted by Vitruvius, in representing the captive women of Caryn, is erroneous. It is probable that they they were originally statues in honour of Diana.

CASEMENT. The same as Scotia, which see—also the term used for a sash hung on hinges.

CAULICULUS. The volute or twist under the flower in the Corinthian Capital.

CAVETTO. A hollow moulding, whose profile is a quadrant of a circle, principally used in Cornices.

CELL. See NAOS.

CINCTURE. A ring, list or fillet at the top and bottom of a Column, serving to divide the shaft of the Column from its Capital and Base.

COLUMN. A member in Architecture of a cylindrical form, consisting of a base, a shaft or body, and a capital. It differs from the Pilaster which is square on the plan. Columns should always stand perpendicularly.

COMPOSITE ORDER. One of the orders of Architecture.

CONGE. Another name for the echinus or quarter round, as also for the cavetto; the former is called the Swelling Conge, the latter the Hollow Conge.

CONSOLE. See ANCONES.

CORBEL, or CORBEILLE. A short piece of timber or stone let into a wall half its length or more, as the burthen super-imposed may require, to carry a weight above it, projecting from the general face of the work; it is carved in various fanciful ways; the commonest form is, however, that of an ogee.

CORINTHIAN ORDER. One of the orders of Architecture.

CORNICE. The projection, consisting of several members, which crowns or finishes an entablature, or the body or part to which it is annexed. The cornice used on a pedestal is called the Cap of the Pedestal.

CORONA. Is that flat square and massy member of a Cornice more usually called the drip or larmier, whose situation is between the cymatium above, and the bed mouldings below: its use is to carry the water drop by drop from the building.

CORRIDOR. A Gallery or open Communication to the different apartments of a House.

CORSA. The name given by Vitruvius to a platband or square fascia, whose height is more than its projecture.

CUPOLA. A small dome, either circular or polygonal, standing on the top of a dome. By some it is called a Lantern.

CUSHIONED. See FRIEZE.

CYMA, called also CYMATIUM. Its name arising from its resemblance to a wave. A moulding which is hollow in its upper part, and swelling below.

There are, however, two sorts, the Cyma Recta just described, and the Cyma Reversa, whose upper part swells, whilst the lowest part is hollow.

DECASTYLE. A building having ten Columns in front.

DENTILS. Small square blocks or projections used in the bed mouldings of the Cornices in the Ionic, Corinthian, Composite, and sometimes Doric orders. Their breadth should be half their height, and their intervals, according to Vitruvius, two-thirds of their breadth. The Grecks were not accustomed to use them under modillions.

DIASTYLE. That Intercolumniation or space between Columns, consisting of three diameters—some say four diameters.

DIE or DYE. A naked square Cube. Thus the body of a pedestal, or that part between its base and its cap, is called the Die of the pedestal. Some call the Abacus the Die of the Capital.

DIMINUTION. A term expressing the gradual decrease of thickness in the upper part of a Column.

DIPTERAL. A term used by the Ancients to express a Temple with a double Range of Columns in each of its flanks.

DODECASTYLE. A building having twelve Columns in front.

DOME. The spherical or other formed concave ceiling over a circular or polygonal building.

DORIC ORDER. One of the five Orders of Architecture.

DRIP. See CORONA.

DROPS. See GUTTÆ.

ECHINUS. The same as the ovolo or quarter round; but perhaps it is only called Echinus with propriety when carved with eggs and anchors. Echinus is the husk or shell of the chestnut, to which it is said, perhaps erroneously, it bears a resemblance.

ENCARPUS. The festoons on a frieze, consisting of fruits, flowers, and leaves. See FESTOON.

ENTABLATURE. The assemblage of parts supported by the Column. It consists of three parts—the Architrave Frieze, and Cornice.

ENTASIS. The swelling of a Column.

ENTRESOL. See MEZZANINE.

EPISTYLIUM. The same as Architrave, which see.

EUSTYLE. That Intercolumniation which, as its name would import, the ancients considered the most elegant, viz. two diameters and a quarter of the Column. Vitruvius says this manner of arranging Columns exceeds all others in strength, convenience, and beauty.

FAÇADE. The face or front of any considerable building to a street, court, garden, or other place.

FASCIA. A flat member in the entablature or elsewhere, being in fact nothing more than a band or broad fillet. The architrave in the more elegant orders is divided into three bands: these are called Fasciæ. The lower is called the first Fascia, the middle one the second, and the upper one the third Fascia.

PASTIGIUM. See PEDIMENT.

FESTOON. An ornament of carved work, representing a wreath or garland of flowers or leaves, or both interwoven with each other. It is thickest in the middle, and small at each extremity, where it is tied, a part often hanging down below the knot.

FILLET. The small square member which is placed above or below the various square or curved members in an order.

FLUTINGS. The vertical channels on the shafts of Columns, which are usually rounded at the top and bottom. In the Doric order they are twenty in number; in the other orders, the Tuscan excepted, which is never fluted, their number is twenty-four. They are sometimes cabled. See CABLING.

FRIEZE or FRIZE. The middle member in the entablature of an order, which separates the Architrave and Cornice. In the Tuscan order it is always plain. In the Doric it is ornamented with Triglyphs. In the Ionic it is sometimes swelled, and in the Corinthian and Composite is variously decorated at the pleasure of the architect. When it swells in the Ionic order, it is called a pulvinated or cushioned frieze.

FRONTISPIECE. The face or fore front of a house; but it is a term more usually applied to its decorated entrance.

FUST. The shaft of a Column. See SHAFT.

GLYPHS. The vertical channels sunk in the triglyphs of the Doric frieze.

GOLA or GULA. The same as ogee, which see.

GORGE. The same as cavetto, which see.

GUTTÆ or DROPS. Those frusta of cones, in the Doric entablature, which occur in the architrave below the Tænia under each Triglyph. They are also found in the under part of the mutules or modillions of that order.

HELIX. The curling stalk under the flower in the Corinthian capital. See CAULICULUS.

HEXASTYLE. A building having six columns in front.

HYPÆTHRAL. In the open air, or uncovered by a roof.

HYPERTHYRON. The lintel of a doorway.

HYPOTRACHELION. The neck of a capital.

JAMBS. The side pieces of any opening in a wall, which bear the piece that discharges the superincumbent weight of such wall.

IMPOST. The capital of a Pilaster supporting an arch. The Impost varies in form according to the order with which it is used. Sometimes the entablature of the order serves for the Impost of an arch.

INSULATED. Detached from another building. A church is insulated, when not contiguous to any other edifice. A column is said to be insulated when standing free from any wall; thus the columns of peripteral temples were insulated.

INTERCOLUMNIATION. The distance between two columns.

IONIC ORDER. One of the Orders of Architecture.

KEY STONE. The stone in an arch which is equally distant from its springing extremities. In a circular arch there will be two Key Stones, one at the summit, and the other at the bottom thereof; in semi-circular semi-elliptical arches, &c., it is the highest stone, and it is frequently sculptured on the face and return sides.

LACUNAR and LAQUEAR. The same as Soffit, which see.—It is, however, to be observed, that it is a Lacunar only when consisting of compartments sunk or hollowed, without the separation of flatbands or spaces between the panels. When they are added, it is called Laquear.

LARMIER. Called also Corona, which see.

LEAVES. Ornaments representing natural leaves. The ancients used two sorts of leaves, natural and imaginary. The natural were those of the laurel, palm, acanthus, and olive, but they took such liberties in the form of these, that they might almost be said to be imaginary too.

LINTEL. A piece of timber or stone placed horizontally over a door, window, or other opening.

LIST or LISTEL. The same as Fillet or Annulet.

METOPE. The square space between two triglyphs of the Doric order. It is sometimes left plain, at other times decorated with sculpture.

MEZZANINE. A low story, introduced between two principal stories.

MINUTE. The sixtieth part of the diameter of a Column. It is the subdivision by which Architects measure the small parts of an order.

MODILLION. An ornament in the entablature of the richer orders, resembling a bracket. Modillions are placed with the intervention of one or two small members under the Corona. They should be so distributed that the centre of one should always stand over the centre of a column. In the Corinthian order they are enriched with carvings; in the Ionic and Composite they are generally more simple.

The term Mutule, which is confined to the Doric order, is in fact the same as the Modillion. The Mutules always answer to the Triglyphs.

MODULE. The semi-diameter of a Column. This term is only properly used when speaking of the Doric order. As a semi-diameter it consists of only thirty minutes. —See MINUTE.

MONOPTERAL. Among the ancients, a circular building having Columns, but without a Cell.

MOULDINGS. Those parts of an order which are shaped into various curved or square forms.

MUTULE. See MODILLION.

NAKED. The unornamented plain surface of a wall, column, or other part of a building.

NAOS or CELLA. The part of a temple within the walls.

NEWEL. The solid, or imaginary solid when the stairs are open in the centre, round which the steps are turned about.

NICHE. A square or cylindrical cavity in a wall or other solid.

OBELISK. A tall slender frustrum of a Pyramid, usually placed on a Pedestal. The difference between an Obelisk and a Pyramid, independent of the former being only a portion of the latter, is that it always has a small base in proportion to its height.

OCTASTYLE. A building with eight columns in front.

OGEE or OGIVE. The same as Cyma, which see.

ORDER. An assemblage of parts, consisting of a Base, Shaft, Capital, Architrave, Frieze, and Cornice, whose several services requiring some distinction in strength, have been contrived or designed in five several species —Tuscan, Doric, Ionic, Corinthian, and Composite; each of which has its ornaments, as well as general fabric, proportioned to its strength and character. These are the five orders of Architecture, the proper understanding and application of which constitute the foundation of all excellence in the art.

ORDONNANCE. The arrangement of a design, and the disposition of its several parts.

ORLO. The plinth of a Column or Pedestal.

OVOLO. A moulding, sometimes called a quarter round, from its profile being the quadrant of a circle; when sculptured it is called an Echinus, which see.

PARAPET. From the Italian Parapetto, breast high. The defence round a terrace or roof of a building.

PARASTATÆ. Pilasters standing insulated.

PEDESTAL. The substruction under a column or wall. A Pedestal under a column consists of three parts; the Base, the Die, and the Cornice or Cap.

PEDIMENT. The low triangular crowning ornament of the front of a building, or of a door, window, or niche. Pediments are however sometimes in the form of the

segment of a circle, when applied to doors and windows. The Pediment of a building is not unfrequently ornamented with sculpture.

PERIPTERAL. A term used by the ancients to express a building encompassed by Columns, forming as it were an aisle round the building.

PERISTYLIUM. In Greek and Roman houses was a court, square, or cloister, which sometimes had a colonnade on three sides only, and therefore in that case improperly so called. There were other Peristylia with a colonnade on each of the four sides; that on the south side was sometimes higher than the rest. This species was called a Rhodian Peristyle.

PIAZZA. A square open space surrounded by houses. This term is ignorantly used to denote the walk under an arcade.

PIER. A solid between the doors or the windows of a building. The square or other formed mass or post to which a gate is hung. The solid support from which an arch springs. In a bridge, the Pier next the shore is usually called an Abutment Pier.

PILASTER. A square pillar engaged in a wall.

PILLAR. A column of irregular form, always disengaged, and always deviating from the proportions of the orders, whence the distinction between a Pillar and a Column.

PLANCEER. The same as Soffit, which see.

PLATBAND. A square moulding, whose projection is less than its height or breadth. The fillets between the flutes of columns are improperly called Platbands. The lintel of a door or window is sometimes called by this name.

PLINTH. The square solid under the base of a column, pedestal, or wall. The abacus of the Tuscan capital is sometimes called the Plinth of that capital.

PORTICO. A place for walking under shelter, raised with arches in the manner of a gallery. The Portico is usually vaulted, but has sometimes a flat soffit or ceiling. This word is also used to denote the projection before a church or temple supported by columns.

POSTICUM. The back-door of a temple, also the Portico behind the temple.

PROFILE. The contour of the different parts of an order.

PROSTYLE. A building or temple with columns in front only.

PSEUDODIPTERAL. A term used by the ancients to express a building or temple in which the distance from each side of the cell to the surrounding columns is equal to two intercolumniations, but wherein the intermediate range of columns which would occur between the outer range and the cell is omitted.

PULVINATED. A term used to express the swelling of the frieze in the Ionic order

PYCNOSTYLE. An intercolumniation equal to one diameter and a half.

PYRAMID. A solid with a square polygonal or triangular base, terminating in a point at top.

QUARTER ROUND. See OVOLO and ECHINUS.

QUOINS. The external and internal angles of buildings or of their members. The corners.

REGLET. The same as Listel.

REGULA. The same as Listel.

RETICULATED WORK. That in which the courses are arranged in a net-like form. The stones are square and placed lozenge-wise.

RING. A name sometimes given to the list, cincture, or fillet.

ROMAN ORDER. Another name for the Composite.

ROSE. The representation of this flower is carved in the centre of each face of the Abacus in the *Corinthian* Capital, and is called the *Rose* of that capital. It is also used in decorating the caissons in the soffit of the corona, and in those of ceilings.

RUSTIC. The courses of stone or brick in which the work is jagged out into an irregular surface. Also work left rough without tooling.

SALON. An apartment for state, or for the reception of paintings, and usually running up through two stories of the house. It may be square, oblong, polygonal, or circular.

SCAPUS. The same as shaft of a Column, which see.

SCOTIA. The name of a hollowed moulding, principally used between the Tori of the base of columns: it derives its name from the shadow it produces. It is sometimes called a casement, sometimes Trochilus, τροχιλος, from its resemblance to a common pulley.

SHAFT. That part of a column which is between the base and capital: it is also called the Fust as well as Trunk of a Column.

SHANK. A name given to the two interstitial spaces between the channels of the triglyph in the Doric frieze. They are sometimes called the legs of the triglyph.

SOCLE. A square flat member of greater breadth than height, usually the same as plinth.

SOFFIT. The ceiling or underside of a member in an order. It means also the under side of the larmier or corona in a cornice: also, the under side of that part of the architrave which does not rest on the Columns.—See also LACUNAR.

STEREOBATA or STYLOBATA. The same as Pedestal.

SWELLING. The same as Entasis.

SYSTYLE. An intercolumniation equal to two diameters.

TÆNIA. A term usually applied to the Listel above the architrave in the Doric order.

TALON. The French name for the Astragal. It is by the French also used to denote the Cyma Reversa.

TERMINUS. A stone anciently used to mark the boundary of property. A Pedestal increasing upwards, or sometimes a parallelopiped for the reception of a bust.

TETRASTYLE. A building having four columns in front.

THEATRE. A building for the Exhibition of Dramatic Shows. It was among the ancients semi-circular in form, (see AMPHITHEATRE), encompassed with Porticos, and furnished with numerous seats, which included a place called the Orchestra, in the front of which was the floor of the Theatre, called the Proscenium.

TONDINO. The same as Astragal.

TORUS. A moulding of semi-circular profile used in the bases of Columns.

TRABEATION. The same as Entablature, which see.

TRIGLYPH. The ornament of the frieze in the Doric order, consisting of two whole and two half channels, sunk triangularly on the plan.

TROCHILUS. See SCOTIA.

TRUNK. See SHAFT. When the word is applied to a pedestal, it signifies the dado or die, or body of the pedestal, answering to the shaft of the Column.

TUSCAN. One of the Orders of Architecture.

TYMPANUM. The space enclosed by the cornice of the sloping sides of a pediment, and the level fillet of the Corona.

VASE. A term sometimes used to denote the inverted bell-like form of the ground on which the leaves of the Corinthian Capital are placed.

VAULT. An arched roof so contrived that the stones or other materials of which it is composed, support and keep each other in their places. Arched ceilings resemble vaults, and are circular, elliptical, or of other forms. When more than a semi-circle, they are called *surmounted*, and when less, *surbased* Vaults.

VESTIBULE. An Ante-Hall, Lobby, or Porch.

VOLUTE. The scroll which is appended to the capital of the Ionic order. There are Volutes also in the Corinthian order, but they are smaller, more numerous, and always diagonally placed. In the Composite the Volutes are also diagonally placed, but larger than in the Corinthian.

XYST or XYSTOS. A term used to express a Portico of great length, in which running and wrestling was practised. It was sometimes covered, and sometimes open.

ZOCLE or ZOCCOLO. See SOCLE.

ZOOPHOROS. The same as Frieze.

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LONDON:
KELLY AND CO., PRINTERS, 18 TO 22, OLD BOSWELL COURT, ST. CLEMENT'S, STRAND, W.C.